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MARCH
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1960

Workbench



**ANNUAL BOATING
ISSUE**

Build This TRIMARAN

**Start now and have it
ready for summer
sailing**

**CONTEMPORARY CAFE TABLE
HEATED
INSULATED
INSTALLED
SKYLIGHT**

Get into ... PLASTIC LAMINATING AT HOME!

Sensational New
**"ONE MAN
BUSINESS"**
... pays \$10 to \$20 profit
for each dollar of cost.

Make Up to \$5.00 an Hour by our
MAGIC MAIL PLAN ... get
orders and cash from your mailman!

Here's the newest and most fascinating of all home-operated businesses. For the first time, a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within the reach of the small operator. Can be operated in a corner of the kitchen, basement, or garage. And any man or woman, regardless of age, education, or experience—can learn this interesting work in a few minutes of reading—can turn out professional jobs after one hour's practice.

TWO EXCITING FIELDS FOR BIG PROFITS!

No house-to-house canvassing. No face-to-face selling. We not only supply the equipment you need for the work, but also show you exactly how to cash in big daily profits from two big demand fields.

A Fortune in Plastic Sealing

Millions of people want to protect valuable cards, photographs, documents and papers against wear, soil, and damage. By our MAGIC MAIL Plan you get this business through the mails. Open envelopes and take out money and orders. Details of this plan will amaze you. It will be sent free. Just mail handy Business Reply Card.

Enormous Profits in Laminating

A creative, artistic business. Gift shops sell your entire output. Just a few of thousands of giftwares illustrated on this page. Beautiful colors. Endless designs. Ex-

clusive "one of a kind" appeal bring sales at ten to twenty times the cost of materials. Beautiful illustrations and instructions for making these artistic novelties sent free.

The opportunities in Plastic Laminating are so big that space here does not permit even skimming the surface. To get any idea at all of the size of these markets and your place in this sensational business you must read the details. See for yourself how easy it is to do the work—how you can put plastic sheets into your machine and take out a fortune—how you can start with one machine and build up a big production plant with others doing the work—how you can get money and business from every State in the Union—how you can achieve independence without study or experience.

Never before has such an opportunity been offered to the small, home operator—an opportunity to gain complete personal independence in a big money business of your own. Mail Business Reply Card now and get full particulars—FREE and postage prepaid.



CASH MONEY COMES TO YOU in the MAIL

With our MAGIC MAIL Plan you sit at home, send out mail, and get back money and orders. Find out how easy it is to get into this new kind of Home Business and start making big money right away—even in your spare time.

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STATE _____

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Dept. L-6-C

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WARNER ELECTRIC COMPANY
Dept. L-6-C - 1512 Jarvis Avenue, Chicago 26, Illinois

Our Fights Have Turned to Kisses!

IT'S hard to believe that my wife and I used to fight. She would start nagging at me the minute I got home from work and I would snap right back at her! We argued and bickered so often that we suddenly realized our marriage was breaking up! There wasn't any real reason for it except that both of us always felt so tired that we got on each other's nerves!

Our family doctor gave us some advice that probably saved our marriage. Otherwise normally healthy people, he told us, may become run-down and over-tired because their diets do not contain enough vitamins, minerals and lipotropic factors. This could easily cause us to feel worn-out, tense and short tempered.

To correct this condition, each of us started taking Vitasafe High-Potency Capsules. Before long we had more pep, more energy — and our dispositions improved. Instead of fighting, we were back in each other's arms.

If you or your wife have lost the pep and energy you used to have... if over-tiredness makes you nervous and bad-tempered with the ones you love you owe it to yourself to try proven Vitasafe High-Potency Capsules.



A dramatization posed by professional models.



FREE 30 days supply High-Potency Capsules

LIPOTROPIC FACTORS, VITAMINS and MINERALS

Safe, Nutritional Formula Containing 27 Proven Ingredients: Glutamic Acid, Choline, Inositol, Methionine, Citrus Bioflavonoid, 11 Vitamins (Including Blood-Building B-12 and Folic Acid) Plus 11 Minerals

To prove to you the remarkable advantages of the Vitasafe Plan... we will send you, without charge, a 30-day free supply of high-potency VITASAFE C.F. CAPSULES so you can discover for yourself how much stronger, happier and peppier you may feel after a few days' trial! Just one of these capsules each day supplies your body with over *twice* the minimum adult daily requirements of Vitamins A, C and D... *five times* the minimum adult daily requirement of Vitamin B-1 and the *full concentration* recommended by the Food and Nutrition Board of the National Research Council for the other four important vitamins! Each capsule also contains the amazing Vitamin B-12 — one of the most remarkable nutrients known to science — a vitamin that actually helps strengthen your blood and nourish your body organs. Vitasafe Capsules also contain Glutamic Acid, an important protein constituent derived from natural wheat gluten. And now, to top off this exclusive formula each capsule also brings you an important dosage of Citrus Bioflavonoid. This formula is so complete it is available nowhere else at this price!

POTENCY AND PURITY GUARANTEED

There is no mystery to vitamin potency. As you probably know, the U. S. Govern-

ment strictly controls each vitamin manufacturer and requires the exact quantity of each vitamin and mineral to be clearly stated on the label. This means that the purity of each ingredient, and the sanitary conditions of manufacture are carefully controlled for your protection! When you use VITASAFE C.F. CAPSULES you can be sure you're getting exactly what the label states... pure ingredients whose beneficial effects have been proven time and time again.

HOW AMAZING PLAN SLASHES VITAMIN PRICES

With your free 30-day supply of Vitasafe High-Potency Capsules you will also receive complete details regarding the benefits of an amazing new Plan that provides you regularly with all the factory-fresh vitamins and minerals you will need. By participating in the Vitasafe Plan now you are never under any obligation! When you have received your first 30-day trial supply, simply take one VITASAFE Capsule every day to prove that this formula can help you as it is helping so many others. But you remain the sole judge. If you are not completely satisfied, and do not wish to receive any additional vitamins, simply let us know by writing us before the next monthly shipment — or you can use the handy instruction card we

MEN RECEIVE IN EACH DAILY VITASAFE CAPSULE:			
Choline Bitartrate	31.4 mg.	Niacin Amide	40 mg.
Inositol	15 mg.	Pantothenate	4 mg.
dl-Methionine	10 mg.	Vitamin E	2 I.U.
Glutamic Acid	50 mg.	Folic Acid	0.5 mg.
Lemon Bioflavonoid	5 mg.	Calcium	75 mg.
Complex	5 mg.	Phosphorus	58 mg.
Vitamin A	12,500 USP Units	Iron	30 mg.
Vitamin D	1,000 USP Units	Cobalt	0.04 mg.
Vitamin C	75 mg.	Copper	0.45 mg.
Vitamin B ₁	5 mg.	Manganese	0.5 mg.
Vitamin B ₂	2.5 mg.	Molybdenum	0.1 mg.
Vitamin B ₆	0.5 mg.	Iodine	0.075 mg.
Vitamin B ₁₂	2 mcg.	Potassium	2 mg.
		Zinc	0.5 mg.
		Magnesium	3 mg.

We invite you to compare the richness of this formula with any other vitamin and mineral preparation.

ALSO AVAILABLE, A VITASAFE PLAN WITH A SLIGHTLY DIFFERENT FORMULA FOR WOMEN. CHECK POSTCARD IF DESIRED.

will provide — and no future shipments will be sent. Yes, you are under no purchase obligation ever; You may cancel future shipments at any time!

But if you are delighted — as so many people already are — you don't do a thing and you will continue to receive fresh, additional shipments regularly every month — for just as long as you wish, automatically and on time — at the low Plan rate of only \$2.78 plus a few cents shipping for each full month supply. You take no risk whatsoever — you may drop out of this Plan any time you wish without spending an extra penny, by simply notifying us of your decision a few days before your next monthly shipment. Take advantage of our generous offer! Mail postcard now!

A VITASAFE PLAN FOR WOMEN

Women may also suffer from lack of pep, energy and vitality due to nutritional deficiency. If there is such a lady in your house, you will do her a favor by bringing this announcement to her attention. Just have her check the "Women's Plan" box in the postcard.

Mail Postcard To **VITASAFE CORPORATION, 23 West 61st Street, New York 23, N.Y.**

IN CANADA: 394 Symington Avenue, Toronto 9, Ontario

Cast your ballot for
a successful future!

250

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WORKBENCH volume 16 • number 2

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ILLINOIS
"Have averaged over \$50,000 my first 3 years. Hqtrs' help make it possible"
M. Lyons, Chicago.



VIRGINIA
"My 10th year and business keeps growing. Have made as much as \$485 in one day" . . .
E. Roddey, Hampton.



CALIFORNIA
"Made as much as \$347 on just one job. You can't miss with Duraclean" . . .
C. W. Morris, Sacramento.



SOUTH DAKOTA
"Earned \$1571 in a single month. Homeowners here have great need for our services" . . .
L. Canaday, Rapid City

ARKANSAS
"Every person thinks of owning a business. I know of no other which can offer a man so much" . . .
E. Bailey, Hot Springs.

These Men are Building Lifetime Businesses!



MINNESOTA "Averaging over \$300 per month part-time. Nothing beats being your own boss" . . .
T. Mason, Winona.



NEW YORK
"National advertising is tops. One lead from Hqtrs' got me 3 jobs totaling \$500" . . .
T. Cook, Freeport.

6 WAYS TO MAKE MONEY

You get exclusive use of unique absorption process which cleans carpets and upholstery without harmful scrubbing, soaking or shrinkage. It's acclaimed by housewives, mfrs and backed by McCalls and Parents' Seals. Five other profitable services are **soil retarding, mothproofing, flame proofing, spotting and carpet repairing**. Thus, on most jobs you multiply profits. "Headquarters say gross \$9.00 per hour. I gross up to \$12.00. Many dealers I know do even better," says Dan Chilcott of N. Platte, Neb.

You, too, can make BIG MONEY IN THIS Booming Industry

IN YOUR TOWN, too, there's a real opportunity right now for you to meet the growing demand for cleaning of costly carpets and upholstery . . . services for which homeowners are ready to pay good money. Old mechanical methods have proved to be harmful to fabrics, so the field is wide open with our exclusive, safe, scientific absorption method of cleaning. Have you investigated this opportunity? Thousands like those above have, and are now enjoying the financial security of their own business. Many have started part-time and so can you!

This business is easy to learn, and quickly established. There's no overhead, no shop needed . . . you operate from your home and provide all services right in your customer's homes.

We'll train you, show you the already-proved methods for operating and building



your own business, and then we'll back you with 25 continuous services to help you grow.

By starting now, you will be getting in on the GROUND FLOOR of a \$750 million a year industry! Send coupon for complete details on a dealership in YOUR town.

WE HELP YOU GROW

Under our unique cooperative program, you are fully trained through a nearby dealer and at our 50-hour training school.

You're kept up-to-date through monthly magazines, nat'l conventions, and at regional meetings where Hqtrs' staff come to you in your area. You're backed by nat'l advertising in consumer (McCalls, Parents', House & Garden, etc.) and trade magazines. Others of 25 continuous services which help assure your success include: Individual counseling (staff of specialists give you prompt, expert counsel), ad kits, folders, product development, plus others. "Staff at Hqtrs to the last man is the best friend I have in business. They're always willing to do everything possible to guide me to even greater success," says J. Hoak of Charleroi, Pa.

EASY TERMS Moderate payment establishes your own business—pay balance from sales. We furnish machines, sales material and enough supplies to return your TOTAL investment.

ONLY PROCESS TO WIN THESE HONORS



PROOF OF SUPERIORITY

What Manufacturers Say

"... (Duraclean) standards in keeping with service to which . . . carpets and consumer are entitled." —Avisco (American Viscose Corp.)

"... superior to any on-location process with which I'm familiar." —President, Modern Textile Co.

"... we approve this process . . . in keeping with better service to Mrs. Housewife." —Aldon Rug Mills

Send for FREE booklets



Free 16-page booklets detail dealership program. No obligations, no salesman will call. Clip and mail coupon today.

"OWN A BUSINESS" COUPON

DURACLEAN CO., 0-564 Duraclean Bldg., Deerfield, Ill.

Please rush FREE 16-page booklets which detail how I may own my own business. I understand I am under no obligations and no salesman will call.

Name (please print)

Address County

City State

DURACLEAN CO., 0-564 Duraclean Bldg., Deerfield, Ill.

Garden
Tool
Carrier



STANLEY PLANS

8 "Build-it-Yourself"
Projects Ready NOW!
Send 25¢ for your copy of
this new plans folder from
Stanley. Complete plans
for all of these outdoor
living projects:
LOW GARDEN TABLE
VINE SUPPORT
PLANT ENCLOSURE
WINDOW BOX
GARDEN TOOL CARRIER
POTTING BENCH
COLD FRAME
GARDEN TOOL RACK

Write Stanley Tools, Dep't. 5303
New Britain, Conn. Enclose 25¢

YOU, TOO, CAN USE THE VISE USED IN Workbench MODEL SHOP!



DO BETTER
WORK
WITH **VERSA-
VISE!**



CIRCULAR
AVAILABLE

Weight,
17 lbs.

... turns a full circle to easiest work-angle,
standing or laid flat ... and *locks automatically* in desired position as you tighten
the jaws!

At your dealers ... \$13.95 (\$14.95 Rocky
Mountain states and West) or write ...

VERSA-VISE, DEPT. 539, ORRVILLE, OHIO

SECRET to better WOODWORKING! KenKraft Dowel Centers

Eliminate mismatch between mat-
ing dowel holes! Simply drill one
piece; insert KenKraft Dowel Cen-
ters; press or tap against adjoining
piece. Dowel locations are per-
fectly marked! Accurate, thousands
in use, will last a lifetime! Satis-
faction guaranteed.
3 pairs (6 centers), 3 sizes sent post-
paid for \$1.00.



Send \$1 bill, check or money order NOW!

KENKRAFT

Box 1596, Dept. 5, Manhattan Beach, Calif.

LETTERS TO THE EDITOR



Dear Mr. J. W. Hedden:

Was about to discontinue my sub-
scription to **WORKBENCH** at end of
present subscription. However, it
seems to be improving greatly and
thus will see what future issues bring.
Would like to know any readers who
have Sears Accra-Arm Radial Saw
and how they catch sawdust. Also,
any who have funnel on rear of saw.
Thanks,

M. A. Darling, Groton, Mass.

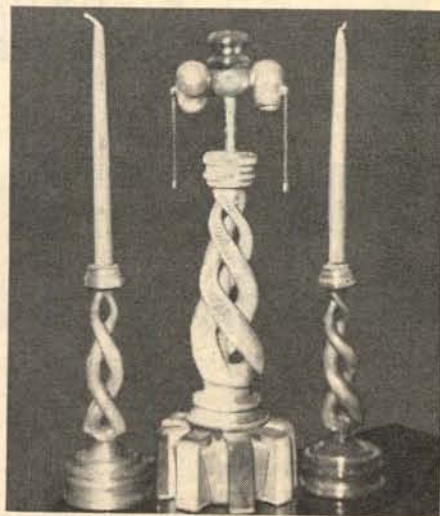
Dear Mr. Hedden:

I enjoy this magazine immensely,
as I use the Shopsmith Mark 5 and
have everything that goes with it.
I have made a chiming Westminster
Grandmother clock and am rebuild-
ing my 1916 WW I Standard J-1 bi-
plane which I used to fly. Enclosed
is a snapshot of the airplane.

I. Douglas Livingston, Portsmouth,
N. H.

Dear Mr. Darling:

Thank you for your kind words about
WORKBENCH. We have plans for a saw-
dust catcher for a DeWalt radial-arm
saw which will be published in an early
issue. With slight modifications the
catcher can be used with any type
radial-arm saw.



Dear Mr. Livingston:

We are publishing the photo of your
plane to show the wide variety of hob-
bies our readers have. Owning a Mark 5
Shopsmith shows that you certainly are
up to date and modern, even though
your plane is from the first World War.
If other readers have snapshots, clear
ones please, of their unusual hobbies,
we would like to see them.

Dear Mr. Hedden:

I'm far beyond college age, but
would like to study specific subjects.
There are no schools near me that
have adult classes, and am wonder-
ing about correspondence schools.
Can you get an education by mail?

C. R. Johnson, Wyoming.

Dear Sir:

I am enclosing a snapshot of a pair
of candlesticks and lamp which I
made. The lamp is made of walnut,
maple, mahogany and cherry. The
candlesticks are two twists and of
walnut. These are made from solid
pieces of wood which are first glued
together then carved into twists. I
have also made a smoking stand and
another lamp from walnut.

Louis Datschefski, Sandwich, Ill.

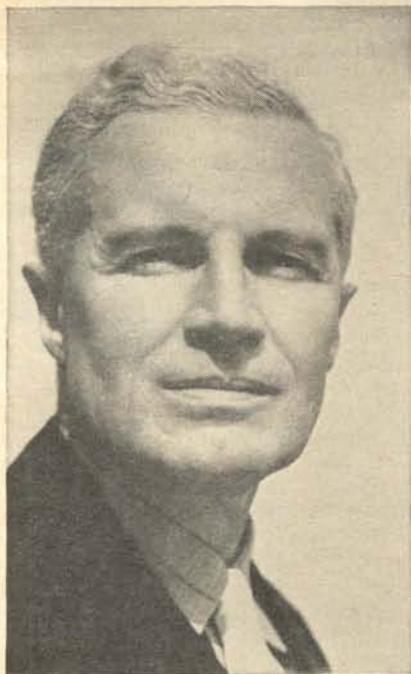
Dear Mr. Johnson:

Yes, and there are many famous
people who have completed their educa-
tion with home-study courses. If you
want to learn woodworking and cabinet-
making, the Interstate Training Service
of Portland, Oregon, has an excellent
course. The International Correspond-
ence Schools of Scranton, Pa., have an
extensive curriculum of home courses.
Articles in future issues of **WORKBENCH**
will explain the advantages in home-
study courses for people like yourself.

Very nice, Louis. We have heard
from other wood carvers, and if there
is enough interest in this art, will pub-
lish some articles on how a beginner
should start, what tools are required,
where to get them, etc.

Jay W. Hedden

Jay W. Hedden, Editor



I'd like to give this to my fellow men... while I am still able to help!

I was young once, as you may be—today I am older. Not too old to enjoy the fruits of my work, but older in the sense of being wiser. And once I was poor, desperately poor. Today almost any man can stretch his income to make ends meet. Today, there are few who hunger for bread and shelter. But in my youth I knew the pinch of poverty; the emptiness of hunger; the cold stare of the creditor who would not take excuses for money. Today, all that is past. And behind my city house, my

summer home, my Cadillacs, my Winter-long vacations and my sense of independence—behind all the wealth of cash and deep inner satisfaction that I enjoy—there is one simple secret. It is this secret that I would like to impart to you. If you are satisfied with a humdrum life of service to another master, turn this page now—read no more. If you are interested in a fuller life, free from bosses, free from worries, free from fears, read further. This message may be meant for you.

By Victor B. Mason

I am printing my message in a magazine. It may come to the attention of thousands of eyes. But of all those thousands, only a few will have the vision to understand. Many may read; but of a thousand only you may have the intuition, the sensitivity, to understand that what I am writing may be intended for you—may be the tide that shapes your destiny, which, taken at the crest, carries you to levels of independence beyond the dreams of avarice.

Don't misunderstand me. There is no mysticism in this. I am not speaking of occult things; of innumerable laws of nature that will sweep you to success without effort on your part. That sort of talk is *rubbish*! And anyone who tries to tell you that you can *think* your way to riches without effort is a false friend. I am too much of a realist for that. And I hope you are.

I hope you are the kind of man—if you have read this far—who knows that anything worthwhile has to be *earned*! I hope you have learned that there is no reward without effort. If you have learned this, then you may be ready to take the next step in the development of your karma—you may be ready to learn and use the secret I have to impart.

I Have All The Money I Need

In my own life I have gone beyond the need of money. I have it. I have gone beyond the need of gain. I have two businesses that pay me an income well above any amount I have need for. And, in addition, I have the satisfaction—the deep satisfaction—of knowing that I have put more than three hundred other men in businesses of their own. Since I have no need for money, the greatest satisfaction I get from life, is sharing my secret of personal independence with others—seeing them achieve the same heights of happiness that have come into my own life.

Please don't misunderstand this statement. I am not a philanthropist. I believe that charity is something that no proud man will accept. I have never seen a man who was worth his salt who would accept

something for nothing. I have never met a highly successful man whom the world respected who did not sacrifice something to gain his position. And, unless you are willing to make at least half the effort, I'm not interested in giving you a "leg up" to the achievement of your goal. Frankly, I'm going to charge you something for the secret I give you. Not a lot—but enough to make me believe that you are a little above the fellows who merely "wish" for success and are not willing to sacrifice something to get it.

A Fascinating and Peculiar Business

I have a business that is peculiar—one of my businesses. The unusual thing about it is that it is needed in every little community throughout this country. But it is a business that will never be invaded by the "big fellows". It has to be handled on a local basis. No giant octopus can ever gobble up the whole thing. No big combine is ever going to destroy it. It is essentially a "one man" business that can be operated without outside help. It is a business that is good summer and winter. It is a business that is growing each year. And, it is a business that can be started on an investment so small that it is within the reach of anyone who has a television set. But it has nothing to do with television.

This business has another peculiarity. It can be started at home in spare time. No risk to present job. No risk to present income. And no need to let anyone else know you are "on your own". It can be run as a spare time business for extra money. Or, as it grows to the point where it is paying more than your present salary, it can be expanded into a full time business—overnight. It can give you a sense of personal independence that will free you forever from the fear of lay-off, loss of job, depressions, or economic reverses.

Are You Mechanically Inclined?

While the operation of this business is partly automatic, it won't run itself. If you are to use it as a stepping stone to independence, you must be able to work with your hands, use such tools as hammer and screw driver, and enjoy getting into a pair of blue jeans and rolling up your sleeves. But two hours a day of manual work will keep your "factory" running 24 hours turn-

ing out a product that has a steady and ready sale in every community. A half dollar spent for raw materials can bring you six dollars in cash—six times a day.

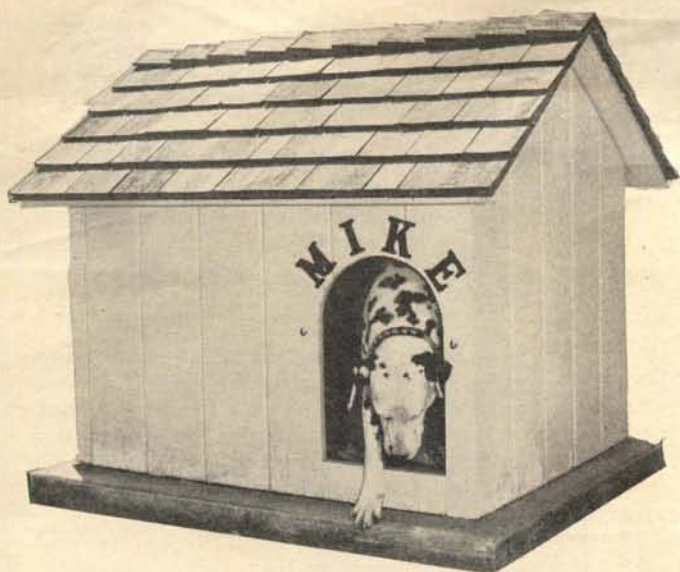
In this message I'm not going to try to tell you the entire story. There is not enough space on this page. And, I am not going to ask you to spend a penny now to learn the secret. I'll send you all the information, free. If you are interested in becoming independent, in becoming your own boss, in knowing the sweet fruits of success as I know them, send me your name. That's all. Just your name. I won't ask you for a penny. I'll send you all the information about one of the most fascinating businesses you can imagine. With these facts, you will make your own investigation. You will check up on conditions in your neighborhood. You will weigh and analyze the whole proposition. Then, and then only, if you decide to take the next step, I'll allow you to invest \$15.00. And even then, if you decide that your fifteen dollars has been badly invested I'll return it to you. Don't hesitate to send your name. I have no salesmen. I will merely write you a long letter and send you complete facts about the business I have found to be so successful. After that, you make the decisions.

Does Happiness Hang on Your Decision?

Don't put this off. It may be a coincidence that you are reading these words right now. Or, it may be a matter that is more deeply connected with your destiny than either of us can say. There is only one thing certain: If you have read this far you are interested in the kind of independence I enjoy. And if that is true, then you must take the next step. No coupon on this advertisement. If you don't think enough of your future happiness and prosperity to write your name on a postcard and mail it to me, forget the whole thing. But if you think there is a destiny that shapes men's lives, send your name now. What I send you may convince you of the truth of this proverb. And what I send you will not cost a penny, now or at any other time.

VICTOR B. MASON

1512 Jarvis Ave., Suite M-6-C
CHICAGO 26, ILLINOIS

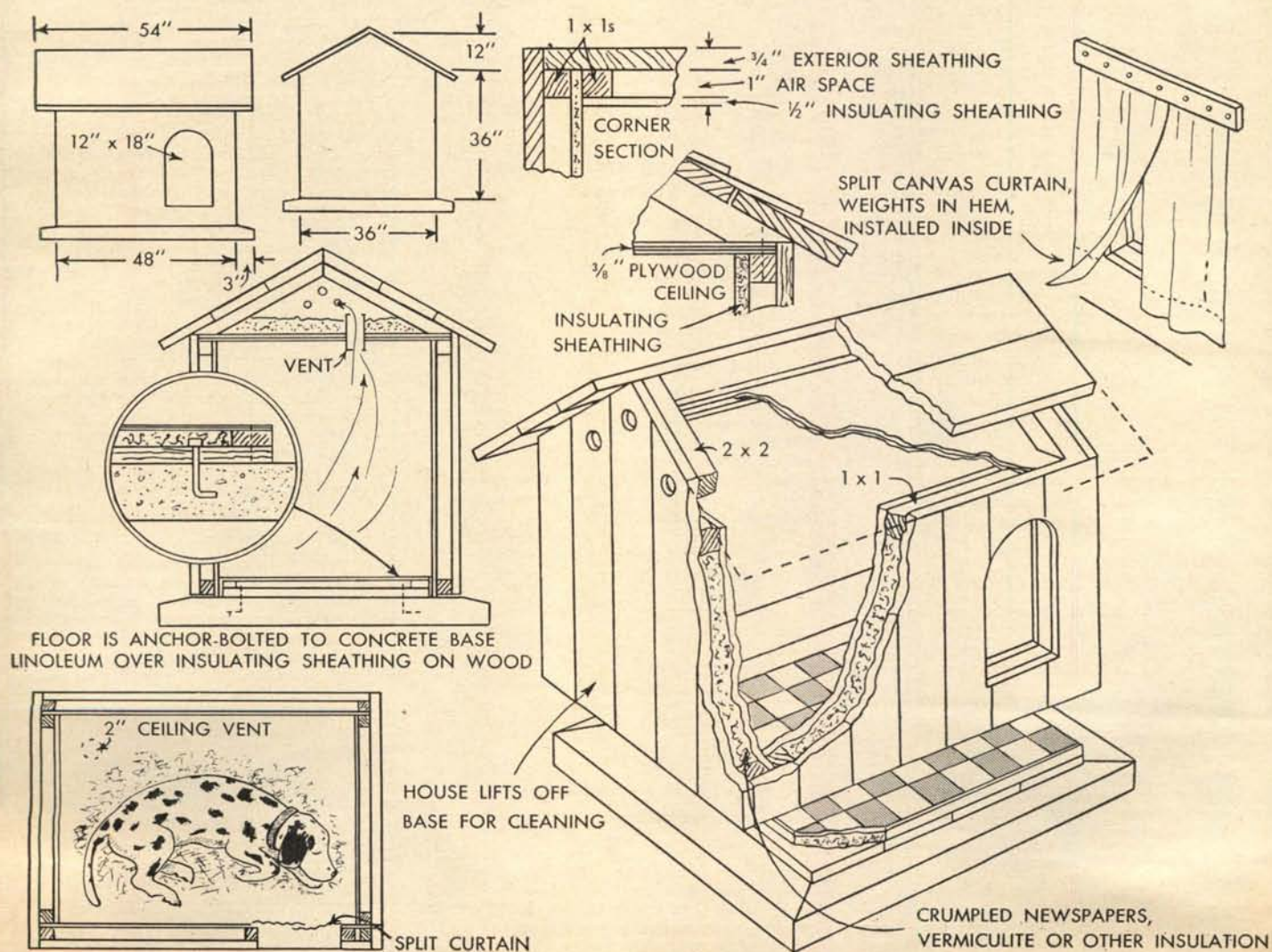


GOOD HOUSING is as important as proper diet in maintaining your dog's health and comfort. Here is an excellent house design that requires only simple carpentry to produce a snug, dry home free from drafts. Concrete for the base can be mixed in a steel wheelbarrow and anchor bolts for the floor inserted before the material sets.

Exterior walls of the original house are pine shiplap, but exterior-grade $\frac{3}{8}$ -in. plywood can be substituted. Note the arrangement of the corner cleats that serve as nailing strips for the Celotex or similar insulating sheathing or wallboard. Assemble the four walls first and fill them with dry, crumpled newspapers or other insulation. Install the ceiling and bore a 2 in. vent hole in a corner away from the door. Extend the vent a couple of inches above the ceiling insulation, so that none of the insulation sifts down. The roof is put on last and may be shingled, as is the original, or roll roofing can be used. For cold weather hang a split curtain of heavy canvas inside the door. Weight the hem so the curtain will close after the dog passes through. A paint job is a "must," especially if plywood is used for exterior walls, both for appearance and long life.

Insulated Doghouse

HI SIBLEY



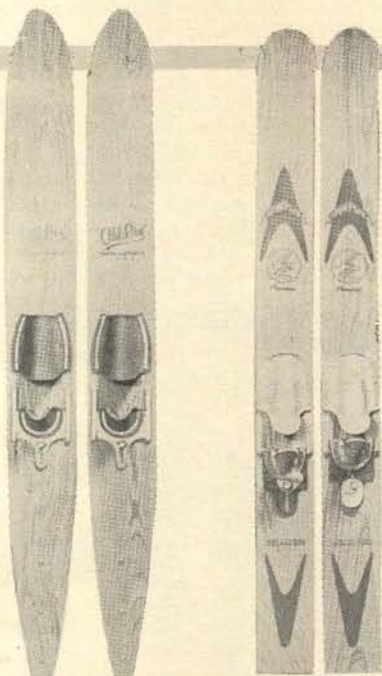
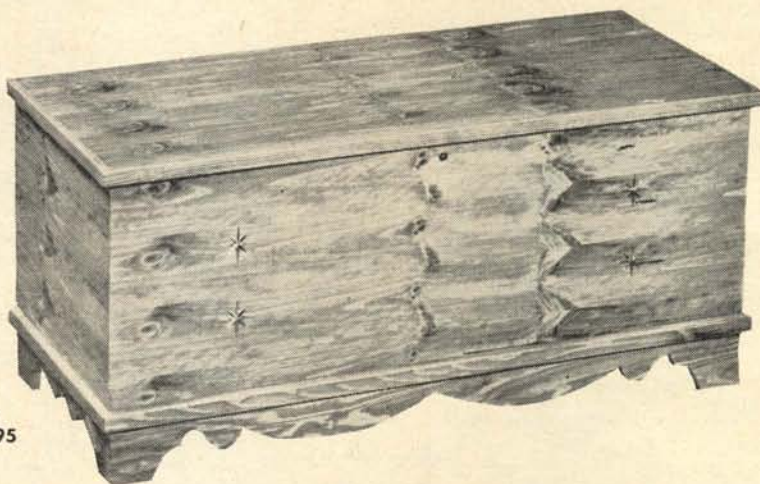
IT'S FUN TO "do-it-yourself"



Whatever your hobby—Giles & Kendall has a do-it-yourself kit for you. There are cedar chests, electronic kits, gun racks, tables, water skis, archery sets and many, many more. Write for your copy of the G & K complete catalog. There are 24 pages of handsome kits to choose from.

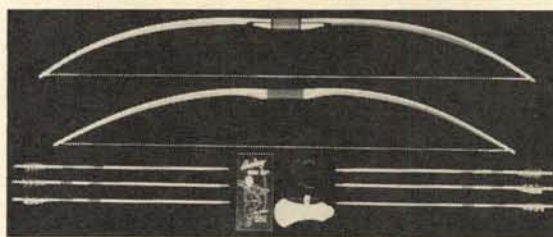
KNOTTY PINE CHEST

This beautiful chest has top, front and ends of selected knotty pine veneer. The back and bottom are genuine aromatic cedar. Overall dimensions, 20 inches wide, 46 inches long, 21 inches high. Front is tastefully decorated with four plastic stars as desired. Shipping weight including hardware, 75 lbs. Many other styles to choose from.
Number 666 \$24.95



WATER SKI KITS

For fun on the water, you can't beat these 7 ply, $\frac{3}{8}$ inch thick waterproof plywood skis. Permanently bent on one end, their lightness, durability and performance are unmatched. They can be finished material or painted. The ski bindings are made of vinyl fittings with nylon hardware. No metal or rubber to rot or corrode. Size, 5 ft. 9 inches by 6 inches. Shipping weight, 16 lbs.
Number 866—Outboard or inboard style \$13.95
Number 868—Banana speedster style \$13.95
Number 869—Banana Slalom (same as above, one ski only) \$ 9.95



JUNIOR CHAMPION ARCHERY KIT

Designed for boys and girls aged 9 to 12, this kit consists of 4½ foot hickory bow with hemp string, approximately 15 lbs. pull. Six arrows with plastic nocks, metal points, ground base fletching. Leather arm guard, finger tab and arrow rest. Illustrated 16 page booklet "Archery Made Easy". Shipping weight, 8 pounds.

Number 806 \$4.50

CHAMPION ARCHERY KIT

Ideal for teenagers and women, this kit consists of 5 foot hickory bow, with Lay-Latex double loop string. Has a pull of 20 to 30 pounds. Six 26 inch arrows, with plastic nocks, metal points, ground base fletching. Leather arm guard, finger tab and arrow rest. Illustrated 16 page booklet, "Archery Made Easy". Shipping weight, 9 pounds.
Number 808 \$5.95

GILES & KENDALL CO.
Box M, Huntsville, Ala.

Please send me your new 24 page catalog of "do-it-yourself" kits. Enclosed is 25¢ (coin or stamps) to cover cost. I understand this amount will be credited on my first order.

Send to: _____

Address: _____

City: _____ State: _____

Send to: _____

GILES & KENDALL CO. Box "M" Huntsville, Alabama

MARCH-APRIL, 1960 » 9

FIG. 1. When hose is to be retracted, it first is laid out straight, then handle on cable is gripped and push-pull motion rotates reel.

Garden Hose "Hides" Inside House

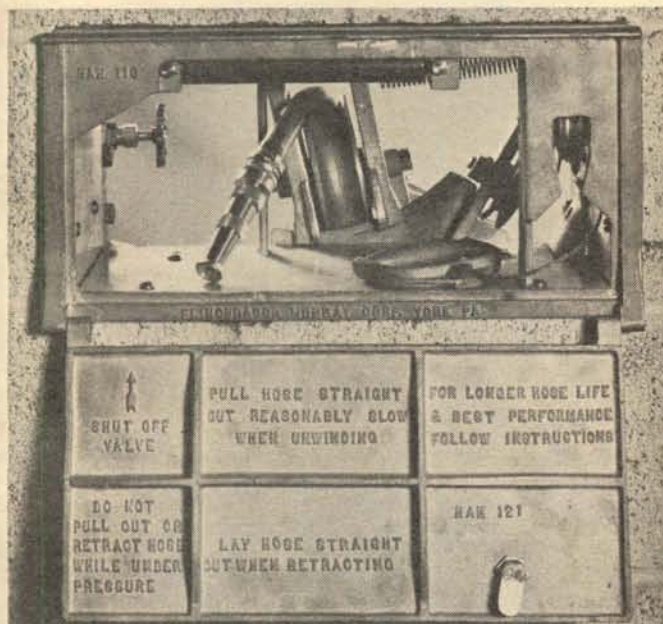


FIG. 2. Cast aluminum compartment is fitted in wall of house, has locking cover that prevents anyone but owner from reaching hose.



NO OUTSIDE faucet is required for "Hide-A-Hose," which consists of a reel located in the basement that can hold up to 150 ft. of hose, and an access compartment, Fig. 2, fitted in a wall of the house. A locking cover on the compartment prevents anyone but the owner from reaching either the hose or the faucet. To use the hose, the compartment door, Fig. 2, is unlocked and the hose pulled out straight. An additional feature of Hide-A-Hose is that a compartment located in the floor permits the hose to be reached and pulled up into the house where it can be used for fire fighting, Fig. 3. To retract the hose, a handle fastened to a steel cable, Fig. 1, is gripped and pulled. A push-pull motion with the handle rotates the reel, Fig. 4, and the hose is wound on it. Note in Fig. 4 that a swivel coupling on the pipe line permits the hose to be constantly connected to the water line. If the reel clashes with the decor of a basement recreation room, it can be boxed in and hidden. $\Delta \Delta$



FIG. 3. Trap door in floor of house permits hose to be pulled up into house to permit use in fighting fires before they get out of hand.

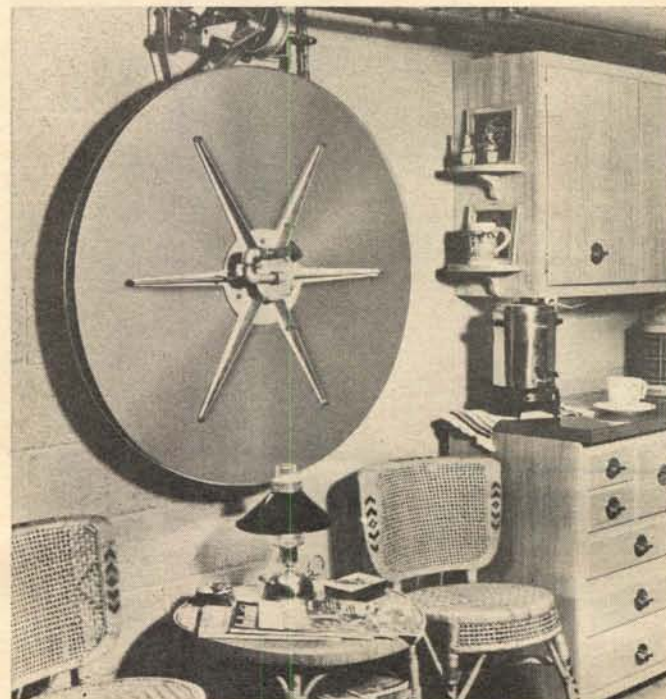


FIG. 4. Design of reel blends with decor of recreation room in basement, but a wooden cover can be built around it if appearance is objectionable.

SOWING PENNIES

to Harvest Dollars

when they are needed

How hundreds of far-sighted men are using spare hours now to assure themselves of a ready made income in the event of lay-offs or recessions that might affect their jobs.

All over the country it's happening. You may even know some of the men who already have started home operated businesses of their own in their spare hours. They keep their jobs. The "boss" doesn't know they are planning for independence. They do not have any heavy investments in equipment or inventory, because they buy their raw materials as they are needed. They have no overhead expense because they operate their businesses from their homes.

Yet hundreds are quietly developing a second source of income—an extra income right now for their spare hours; and a business that can be quickly expanded if it were ever necessary to look to it for complete support.

These "little" home businesses are little only in the sense that they require little capital to start and run, and they require little time on the part of the owner. The margins of profit in some of them are so fantastic as to be almost unbelievable—far greater than those usually enjoyed by big investment manufacturing.

And, there are many kinds and types. For the man who is mechanically inclined there are businesses in which he can use his hands as well as his head. For those who have no aptitude with tools there are small manufacturing operations that are almost automatic in their production methods.

One of the features found in many of these businesses is a wide and ready market for the product. Usually it is a product too small in total national market to attract the attention or envy of the big investors. So, the danger of competition from big operators is absent. Usually it is a product that enjoys a neighborhood demand so that good markets are found in any size community from the small town to the neighborhoods of the big city. Usually the cost of the raw materials is only about one tenth the selling price. One such product costs 11¢ for raw materials, yet sells readily for \$1.00. Another sells for \$6.50, yet the raw materials cost only 55¢. Still another returns \$1.80 for each 27¢ worth of raw materials.

In the same way that history had its "Minute Men", quietly trained and ready at a moment's notice, so today, we have a constantly growing number of "Ready Men." They are working at steady jobs in offices, stores, factories, gas stations. They have a regular income *now*—an income that only a few months ago was considered both *regular* and *dependable*. But when the signs went up, they started quietly to prepare for independence. They are ready. They have mastered the details of their businesses. They have been making twenty,



thirty, forty, or more dollars a week as *extra* money—now—sometimes with others in the family helping. They have established the outlets for their products. But, more important than their present extra income, they are ready, overnight, to give their full time and to expand their businesses into full-fledged operations at increased income.

The fear of layoffs is gone from their hearts. The worried look induced by threats of recession has vanished from their faces. They face the future with confidence because they have sown the pennies that will be reaped as dollars when more dollars are needed—they have attained a sense of personal independence that puts them above worry and fear.

What are these businesses? There are a number. One that is especially interesting and that you can own outright for less than \$175.00 is the manufacture of a product used in quantity in every office and factory in the nation—and by millions of individuals.

The product is light in weight and can be delivered to customers by mail for just the cost of a few stamps. And 27¢ worth of material, to which you add nothing but your own time, brings back \$1.80 in cash at retail. The entire "factory" takes so little space that it can be operated on a table top in any spare room, the basement or garage and it is such a simple process that even the junior members of the family can help. The equipment is supplied by The Warner Electric Company who also give seven different methods of selling the output. These methods include a plan by which others sell your product so there is no canvassing needed on your part; another plan by which you sell by mail.

Complete information concerning this and other businesses is free. Information is mailed, postage prepaid, to anyone who is interested. There is no obligation and, since the company has no salesmen, you are not bothered by anyone trying to "sell" the equipment. On the basis of the information mailed, you decide in the quiet of your own home whether you are interested.

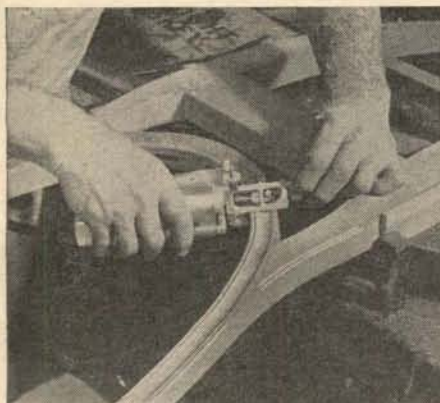
It is not necessary to write a letter. Just send your name and address on a postcard and say you want complete free information on various home businesses offered by Warner Electric Company. Address your card to Warner Electric Company, Dept. R-6-C, at 1512 Jarvis Avenue, Chicago 26, Illinois. You may want to plan a degree of security for the future that is not experienced by men who depend upon the ups and downs of others' businesses for their livelihood.



keeping up with craft and home products

In communicating with companies whose products are described in this department, please mention WORKBENCH.

Portable Shaper "Hand Carves"



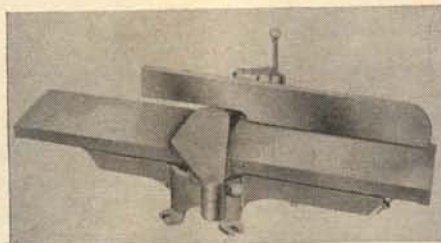
NEW SHAPER utilizes variety of bits, cutters and arbors to perform operations usually done by hand. Will rout, groove and carve on flat and curved surfaces, as well as around corners. Black and Decker Mfg. Co., Towson 4, Maryland.

All-Steel Utility Truck



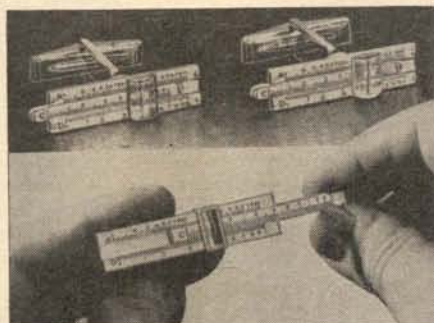
HEAVY-DUTY cart is ideal for all-around handling of material for the homeowner. Curved cross members make it easy to handle barrels and other curved objects, as well as flat items. Semi-pneumatic tires. Fairbanks Co., 393 Lafayette St., N.Y. 3, N.Y.

Low-Cost Jointer



ACCURATE, RUGGED 4-1/8-in. jointer-planer carries 10-yr. unconditional guarantee. Cost is \$19.95 F.O.B. American Machine and Tool Co., Royersford, Pa.

Slide Rule Tie Clasp And Cuff Links



SLIDE RULE on this tie clasp really works, always handy for quick figuring. Non-operating cuff links to match. Clasp is \$4.95, links \$4.95 a pair. Sterling silver, from Leslie Creations, Lafayette Hill, Pa.

Low-Cost Bench Grinder



WEIGHING ONLY 7 1/4 lb., and just 10 in. long, this economy-priced bench grinder has design and construction features of expensive models. Features adjustable tool rests, built-in

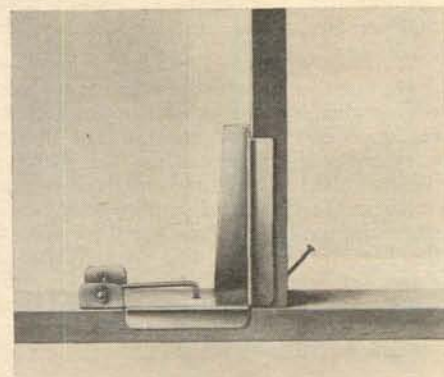
water cooling tray, cast-in top parts tray, rear dust exhaust and eye shields. Fitted with two 1/2 x 4 1/2-in. wheels, one 40 grit, one 70. Speedway Div. Thor Power Tool Co., 1421 Barnsdale Rd., La Grange Park, Ill.

Time Runs Backward



ACCURATE CLOCK shaped like pocket watch runs backward, has reversed numbers. This conversation starter is Krazy Klock, \$8.95 from Spartus Corp., 2110 W. Walnut, Chicago, Ill.

Tool Holds Studing Vertical



NAILING VERTICAL 2 x 4s in studing is simple job when this tool is used. Made of heavy-gauge steel, it holds lumber upright and prevents it from moving when it is toenailed in place. Twice length of tool base is exact spacing between 2 x 4s on 16-in. centers. Stud-Rite, about \$2.50, James and Edwards, Floral Park, N. Y.

BARGAINS!

IMAGINE GETTING BANKRUPT, CLOSEOUT BUYS SUCH AS THESE!



- \$1 Chlorophyll Tablets, 7½c pkg.
- 15c Textile dyes, 3½c pkg.
- \$12.95 Name brand Kitchen set, \$3.25.
- \$49.95 Gold Bracelet, Boxed \$4.75.
- POSTAL SCALES, 7½c each!
- \$2.98 Horserace game records, 30c ea.
- \$1.95 Men's silk ties, 12½c each!
- PENCILS, 144 for 57½c!
- 69c Insect Repellent, 5c each!
- CHRISTMAS SEALS, 25c per 1000!
- ENVELOPES, 50c per 1000!
- 35c DRESS PATTERNS, 3c each!
- Calendar Wrist Watches, \$5.00 each!
- \$10 Men's Toiletry Sets, 60c each!
- New Bobby Pins, 70c per 700!
- \$5.50 Lucite Hairbrushes, 65c each!
- \$1.75 Rudolph kids toiletry sets, 35c.
- NEW HAIRNETS, ½c each!
- \$1 Automatic Card Shufflers, 9c each.
- 39c Under Arm Deodorant, 2c jar!
- 25 card asst. Xmas cards, 11c box!
- 50c Everyday greeting cards, 7½c box!
- \$200 Govt. Surplus Typewriters, \$23.
- \$1-\$3 Hard covered books, 20c each!
- 49c Xmas window decorations, 10c per set.
- Famous Brand \$18.75 Perfume, \$1.
- 69c Insect Repellent, 5c each.
- New Phono Records, 45 & 78 RPM, 7c each.
- BUTTONS, 144 for 25c.
- CIGARETTE HOLDERS, 1c each.
- \$1 Kiddies Handbags, 3c each.
- \$1 Val. Billfolds, 15c each.
- \$2.50 Wallets, 30c each.
- LADIES APRONS, 6¼c each.
- D.E. Razor Blades, \$1.50 per 1000 blades.
- \$1 Mufflers, Scarfs, 12½c each.
- Plastic Toy Guns, 2c each.
- 25c Rudolph Reindeer brooches, 2c each.
- \$15 Electric Percolators, \$5 each!

(Above bargain list merely illustrates type of Bargains usually found in this paper. Lists Naturally change from month to month.)

PLUS HUNDREDS OF OTHER SENSATIONAL BUYS!

ONLY IN "BARGAINS" WILL YOU Find Every Month Similar—

- **BANKRUPT, CLOSEOUT, SURPLUS BARGAIN OFFERS • BARGAINS AT WHOLESALE**
- **BELOW WHOLESALE • RARE MONEY MAKING OFFERS • New and Unusual Item Information**

ONE issue of this SENSATIONAL Publication can make or save you MORE MONEY than the COST OF THE ENTIRE SUBSCRIPTION! This is the ONLY Big National paper of this type in circulation! You'll be AMAZED, FLABBERGASTED and DELIGHTED at the wonderful listings in every issue!

Look What Subscribers Are Saying!

Here's What Subscribers say about "Bargains" After Receiving Their first copies!

"... Your book BARGAINS is just wonderful and I am very glad I subscribed to it." — H. K., Port Monmouth, N. J.

"... As a result of answering one of the ads (in Bargains) it has resulted in extra profits of \$40.00 and upwards per month." — J. H., Alabama.

"... Saw your wonderful paper and enjoyed every bit of its reading and adv. It's a Great Paper." — M. S., Vermont.

"... I am very pleased with BARGAINS. I have never seen anything like it and am looking forward to my future copies especially the Christmas edition." — Mrs. D. M., Maine.

"... Received my first issue of Bargains and may I say it is a great magazine." — M. H. C., Alabama.

"... I think BARGAINS is the best merchandise publication I have ever seen (And I have seen hundreds)." — S. P. C., Brooklyn, N. Y.

"... Received my 1st copy of BARGAINS the other day and am very pleased, the information you publish may be just the 'shot in the arm' my business needs." — D. S., St. Albans, N.Y.

"... I have found your magazine very helpful." — W. A. P., Ogdensburg, N. Y.

"... Received your paper. Thank you very much. It is one of the finest we have ever seen." — F. D., Iowa.

"... I was the recipient of my 1st copy a few days ago. I am completely satisfied with the periodical. I also wish to express my appreciation to you for having made the magazine available to me. I shall be pleased to continue my subscription as long as the magazine is available." — W. S., Wash.

"I have been a subscriber of your 'Bargains' magazine for nearly a year, and very much pleased with it. I wouldn't want to miss a copy of it. So I am sending in the valuable coupon you sent me with \$2.00 in cash. I am so glad to be one of your subscribers." — Mrs. E. L., Richmond, Calif.

PLUS MANY OTHERS!

THE ABOVE LETTERS WERE NOT SOLICITED IN ANY WAY OR MANNER—ALL ARE IN OUR OFFICE FILES! They are the enthusiastic reaction of subscribers after seeing their first copies of BARGAINS!

WHAT CAN YOU LOSE? If you are not delighted with your 1st issue, you can have your money back IN FULL! No quibbling about it either! CAN WE MAKE A MORE STRAIGHT-FORWARD OFFER THAN THIS?

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Toys, Books, Jewelry, Greeting Cards, Cosmetics, Household Merchandise, Appliances, Industrial Materials, Machinery, Tools, etc.

MAKE FANTASTIC PROFITS!

Bargains as low as 10¢-25¢ on the Dollar!

BUY CHEAP—SELL CHEAP! That's why thousands of smart salesmen, store owners, jobbers, etc. buy this paper! They know where to buy at CHEAPEST PRICES! NO REASON why YOU can't DO THE SAME! Many articles, features every month show you HOW to sell bargains for big profits—if you don't know how!

It's HARD to believe, but IT'S THE TRUTH! Terrific Bargains can save you 40%-80% or more on every dollar you spend!

SUBSCRIBERS SHOPPING SERVICE

ONLY PAPER OF ITS KIND AVAILABLE!

Enables YOU to Buy Big Name Merchandise At Tremendous Savings! "BARGAINS" negotiates bargain offers in merchandise AT LOW WHOLESALE PRICES, and then offers them to subscribers only at NO PROFIT. Permits you to buy at dealers prices! This is but ONE feature of BARGAINS!

Search your newsstand high and low. YOU WON'T FIND ANOTHER PAPER ANYWHERE LIKE IT! "Bargains" is available by SUBSCRIPTION ONLY. It's the only paper we know in existence that actually lists Bankrupt, Closeout, Surplus offers every month. Bargains so rare and terrific, you'll blink your eyes in amazement!

SAVE Up to \$1000—EARN Up to \$3000!

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Your subscription will automatically include the BIG 1960 CHRISTMAS ISSUES—just in time for the big holiday season. Special issues jammed full of amazing holiday bargains. Imagine being able to buy \$1.00 worth of goods at 15c, 25c or 35c.

JUST \$2.00 FOR 12 BIG ISSUES!

Reg. Price is \$3.00 per year, BUT YOU CAN STILL BUY 12 BIG ISSUES FOR \$2.00! Just 18c per month! Save yourself \$1.00 by subscribing now. AND SEE OUR AMAZING MONEY BACK IF NOT PLEASED OFFER BELOW! Act Fast, this offer is subject to withdrawal at ANY TIME!

Your Money Back IN FULL if the First Issue Doesn't Please You!

"BARGAINS"

Box 591-DH, Lynn, Mass.
O.K. Here's my \$2.00 for 12 BIG ISSUES. Rush me first copy!

Name.....

Address.....

City..... State.....

Remember! Your Money Back IN FULL if the 1st issue that you receive doesn't please you!

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Here's the tool that's really new! With the all new Radial Arm Drill Press you can drill from every angle with professional precision. Accessory kits available for sanding, routing, shaping.



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FREE If dealer cannot supply, write today for free literature. Please enclose name of your favorite dealer.

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Div. ENERGY MFG. CO., Monticello, Iowa

CLEAN IT FAST

with **IMPERIAL BRUSH CLEANER**

Brushes that are caked hard with paint or other finishes can be made like new with Imperial Brush Cleaner. Leaves bristles springy and glossy—never flabby.

At paint and hardware stores.

● Send 25c for illustrated Refinishing Manual or write for free folder "Care of Paint Brushes." Wilson-Imperial Co. 124 Chestnut St., Newark 5, N.J.

Tools and hardware WHOLESALE!

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Sell nationally advertised tools to your friends and neighbors. Also for your own industrial and institutional use. New giant wholesale catalog has room for only your name on it. You get all the orders and reorders. A MILLION DOLLAR INVENTORY AT YOUR FINGERTIPS. NO STOCK TO CARRY. ORDER AS YOU NEED IT!

Stanley, Clemson, Diaston, K. & E. Lufkin, Miller Falls, Wiss, S&K, Thor and many other name brand tools, appliances, power tools, hand tools and others too numerous to mention. **WHOLESALE DISCOUNTS UP TO 50% off. WE SHIP COAST TO COAST.** Send \$1 deposit and get the new giant wholesale catalog. Your \$1 is credited to your first purchase or refunded if not 100% satisfied. Write NOW!

U. S. GENERAL SUPPLY CORP., Dept. 287
149 Church St., N. Y. 7, N. Y.

Better Than
Your Own

SHOE STORE AT HOME

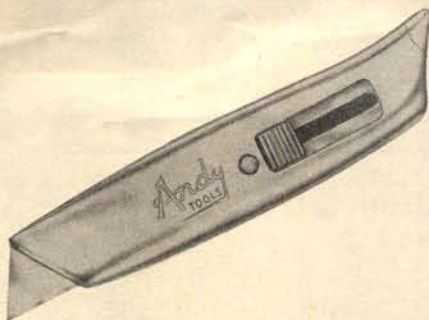
No investment, no experience needed. Just show magic cushion comfort to friends, neighbors, co-workers. Advance commissions to \$4.00 a pair, plus Cash Bonus, Paid Vacation, \$25.00 Reward Offer Outstanding values for men, women, children. Money back guarantee. Shoe samples supplied without cost. Write TODAY for FREE new 84 page catalog and full details.

TANNERS SHOE CO., 611 BROCKTON, MASS.



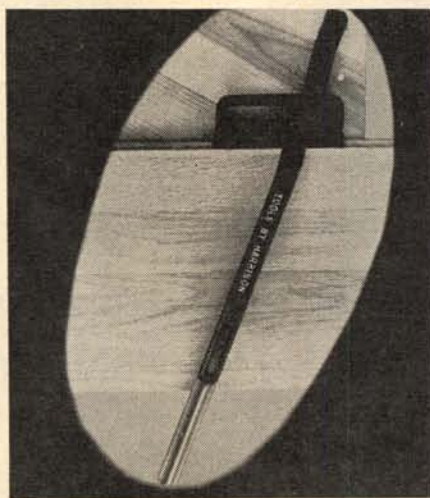
Two-
Eyelet
Hit With
Cushioned
Comfort

Push-Button Utility Knife



UTILITY KNIFE has blade that locks in two cutting positions, retracts completely for safe carrying in pocket. Anderson Tool & Mfg. Co., 3450 N. Kostner, Chicago, Ill.

Hardwood-Flooring Clamp



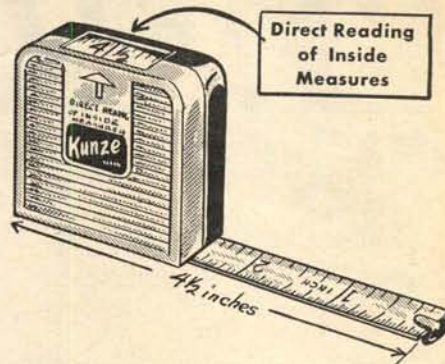
EVEN WARPED or crooked flooring boards are straightened and held tightly together by this clamp. Also ideal for subflooring, sheathing and roof boards. Harrison's, R.D. 2, Kirkville, N. Y.

Electric-Motor Clamp



APPLIANCE MOTORS often have no bases to permit them to be clamped to a bench or tool stand. This motor holder of rustproof steel solves that problem, permits motors from major appliances to be used for shop power tools. \$1.75, Lemmerman-Walstedt Co., 519 Lincoln Ave., St. Cloud, Minn.

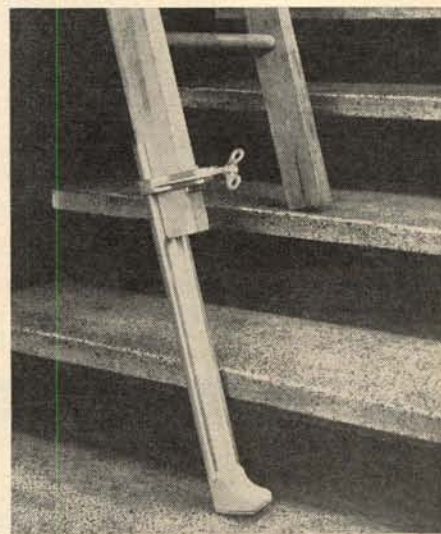
Direct-Reading Measuring Tape



Direct Reading
of Inside
Measures

DIRECT READINGS of inside measurements is advantage of this measuring tape. Hairline in opening on top of case shows inside measurements accurately up to 78 in. Scale on back of rule makes this possible. The Kunzes, 728 West 45 St., Kansas City 11, Mo. Price \$2.00.

Keep Your Ladders Level



QUICKLY CLAMPED to rail of ladder this device keeps it level on stairs, sloping ground, slanting roofs. Beech Industries, 495-525 N. 20th St., Box 95, Battle Creek, Mich.



"After His Do-It-Yourself, I Have to Do-It-Myself."

Craft and Home Products

Kit-Built Western Lamp



MINIATURE SADDLE, measuring $7\frac{1}{2}$ x 10 in., is assembled from leather pre-cut parts. Base, shade, electrical parts and hardware are included in kit that makes lamp 24 in. high. \$13.95 ppd., Tandy Leather Co., P.O. Box 791, Fort Worth, Texas.

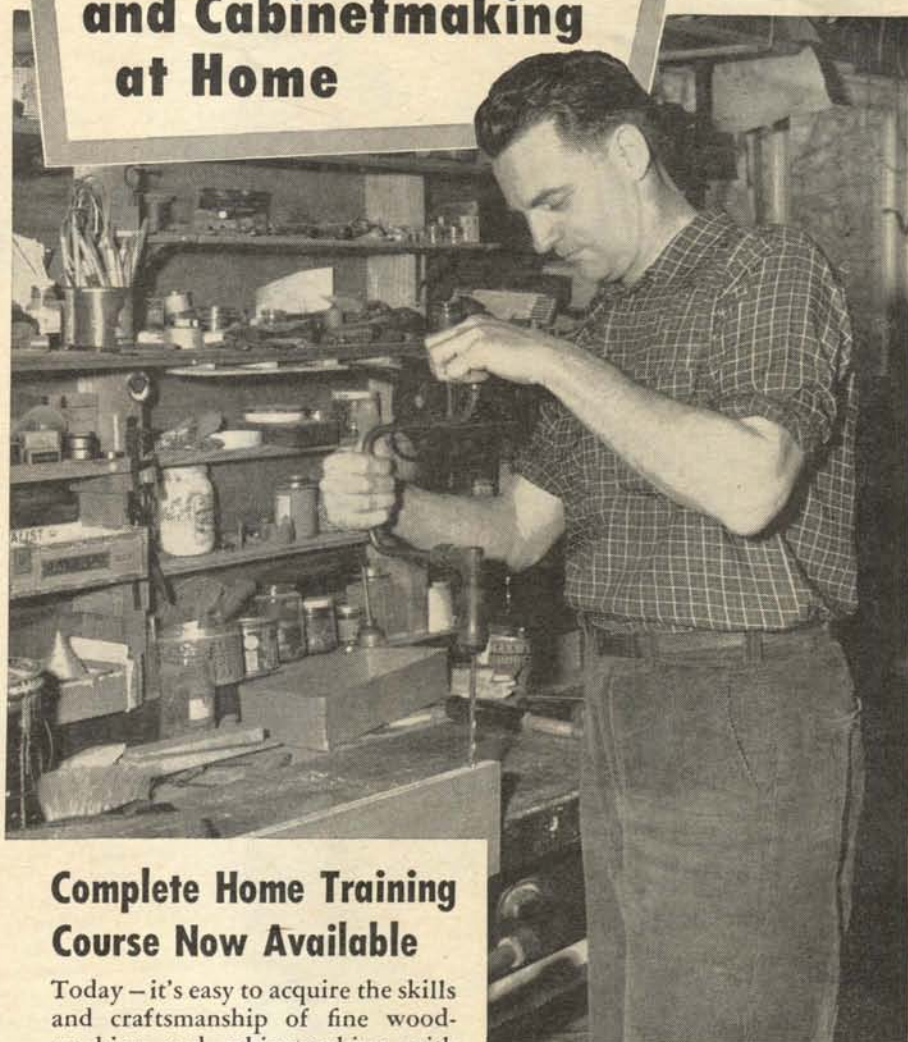
Paint-Roller "Washer"



STANDARD GALLON paint can accepts this device that cleans, dries and fluffs paint rollers with minimum of cleaning fluid or solvent in can. One model is hand-powered, other uses $\frac{1}{4}$ -in. drill motor for fast rotation, easier cleaning. Entire cleaning operation is kept in container eliminating mess and keeping hands clean. Beech Rollerator, Beech Industries, 495-525 North 20th St., Box 95, Battle Creek, Mich.

Slipping of clamped glue joints can be prevented by driving several small brads part way into one of the surfaces to be glued, and then snipping off the heads with cutting pliers. Other surface is forced onto projecting brads assuring a "non-skid" joint. Ken Murray, Colon, Mich.

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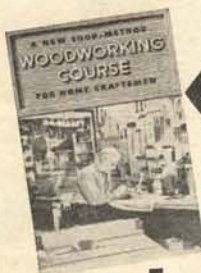
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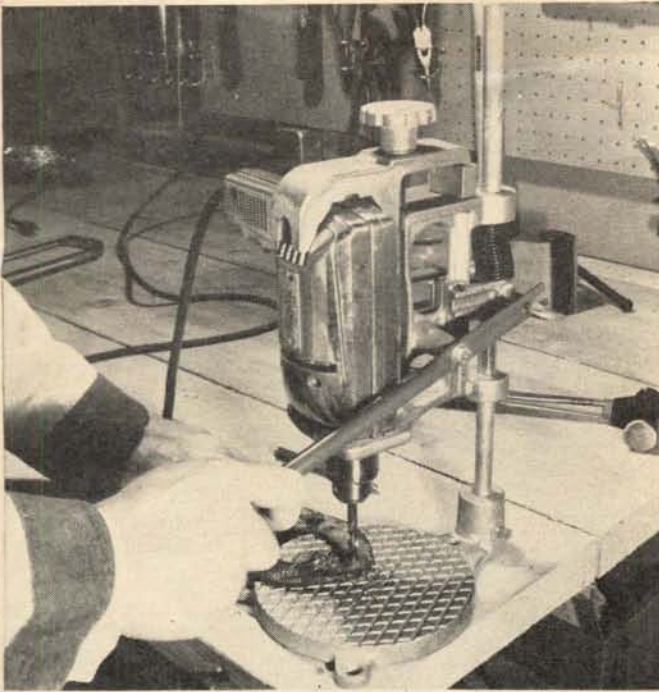


FIG. 1. Table-model drill press is $\frac{3}{8}$ -in. Speedway drill motor in stand, being used to drill rivet head. Low-cost unit is excellent for taking much time and labor from metalworking jobs.

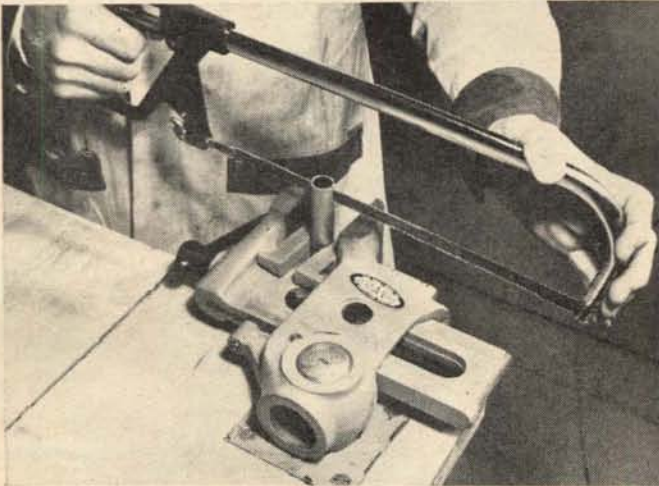


FIG. 2. Good hacksaw, such as our Stanley, is a must for metalworking. Versa-Vise with pipe jaws will hold irregular-shape objects in any position for fast, accurate cutting and shaping.

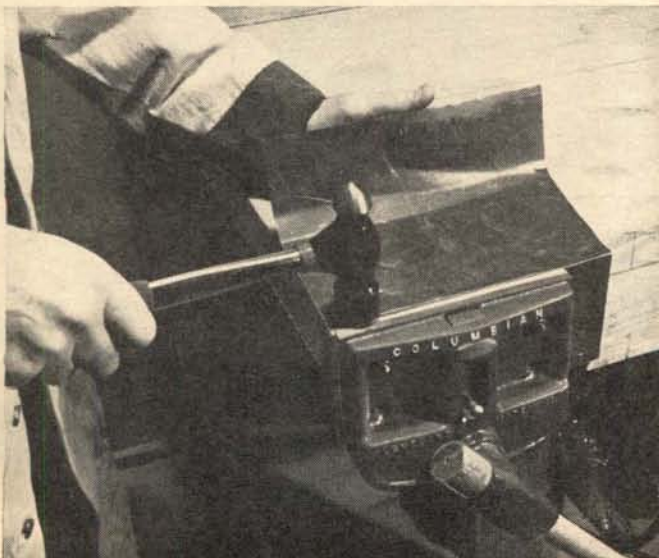


FIG. 3. Indispensable for woodworking, our Columbian woodworker's vise also is ideal for shaping and bending light sheet metal. Its wide, smooth jaws provide excellent sheet metal brake.

Metalworking Tips

GLEN F. STILLWELL

PROPER USE of tools and equipment in metalworking, as in woodworking, is the secret of getting the most work done with the least amount of time and effort. Start with such simple things as having sharp cold chisels and center punches Fig. 6. Upper ends of these tools should be ground smaller than the shank to prevent "mushrooming" that might cause steel fragments to be hurled into your face. When cutting thin metals, use two blades in a hacksaw to minimize breaking the teeth, Fig. 8. Save your hands from hammer blows by improvising holders for cold chisels, Fig. 7 and 9, to keep the chisel away from you. A good vise, Fig. 2, is a must, and it should have pipe jaws for holding cylindrical and irregular-shape objects. To further save your hands when using a chisel, hold the tool as in Fig. 5. Yes, it is awkward at first, but the soft part of your hand will take much more punishment than your knuckles or thumb. Remove rivets the easy way. Make a center punch mark, drill down through the head, Fig. 1, then

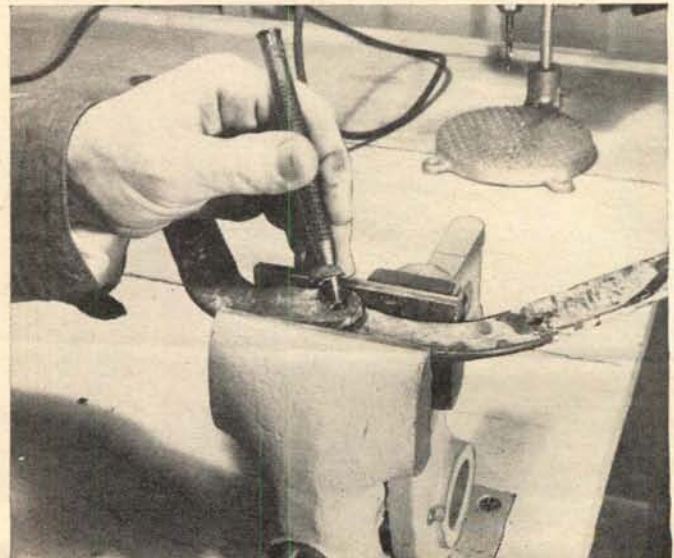


FIG. 4. After drilling through rivet head it is simple job to drive out rivet shank, pop off head, by using drift punch. Bolts that have become "frozen" with rust can be removed in the same way.

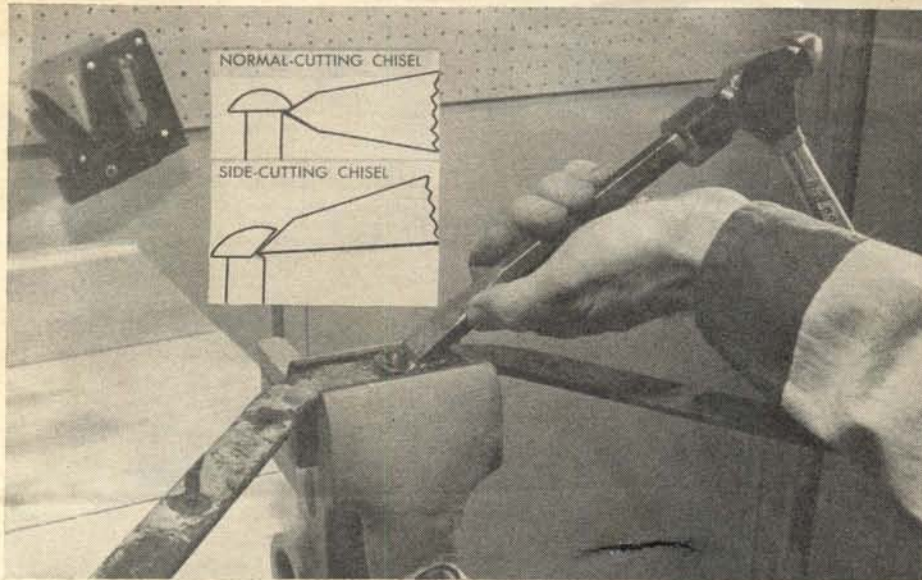


FIG. 5. Shown here is poor use of excellent tool and vise. Although chisel is sharp, it will simply drive workpiece out of vise when used in manner shown. Drive chisel against the face of the jaws. Inset shows side-cutting chisel.

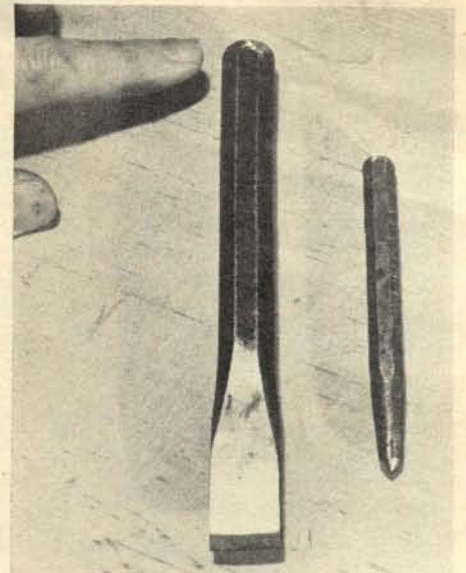


FIG. 6. Chisels, center punches, other metalworking tools should be sharp, ends ground smooth for safe working.

drive the rivet shank out with a straight-shank punch, Fig. 4. If it is necessary to cut off the heads of many rivets and bolts, grind your cold chisel so it is a side cutter, as in the inset in Fig. 5. The side-cutting action lifts the rivet head as it cuts. Fig. 5 illustrates how **not** to cut off a rivet head. This fellow will simply drive the work out of the vise. Cut **against** the vise jaws, so the work is backed up and resists movement.

Bending and shaping light sheet metal, such as aluminum, can be done with a woodworking vise, Fig 3, with its wide, smooth jaws. Heavier sheet metal, angles, flats and the like require a heavier vise, Fig. 2. When working with heavier metal, you can save labor and avoid excessive punishment for your vise by heating the metal at the point of a bend or twist. A propane torch, such as the Turner that we use in the Model Shop is ideal for this, being compact and easy to handle. If one of your cold chisels has an edge that dulls quickly, heat the end to a cherry red, then dip just the end in water a moment. Hold it until you see a blue color run to the cutting edge, then drop the chisel in water so it is submerged completely. This operation will restore the temper to the chisel edge. $\Delta \Delta$

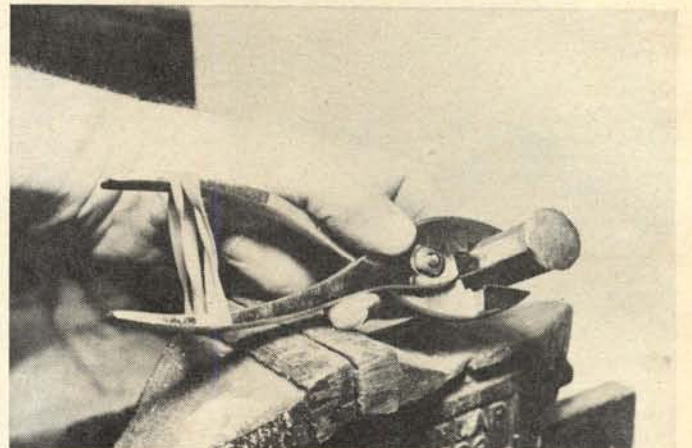


FIG. 7. Improved holder for cold chisel consists of pliers held closed on chisel with heavy rubber band. Head of chisel shown should be ground smooth to eliminate flying particles.

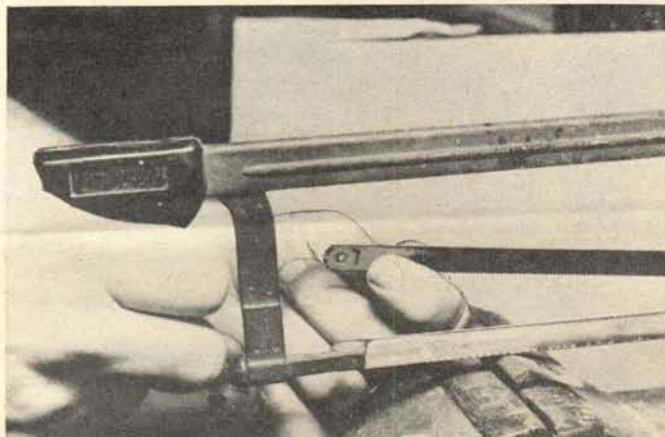


FIG. 8. Double blade in hacksaw may slow cutting, but blade will last longer, as more teeth contact thin metal. Three or four teeth should contact metal at same time to minimize breaking.

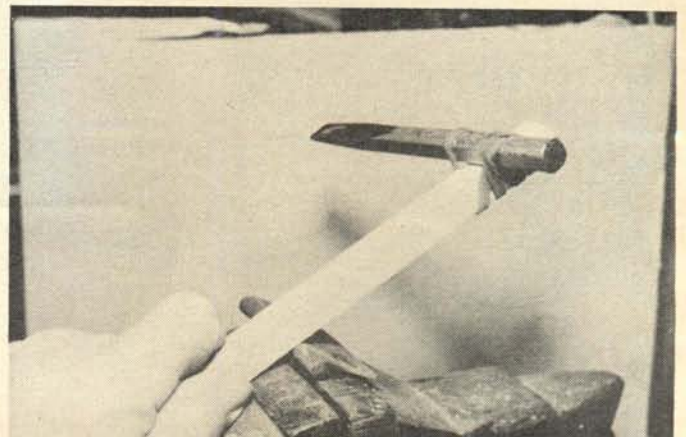


FIG. 9. Another improvised device for keeping chisel away from hands is strip of wood with chisel held to it by rubber bands. This device is especially good if someone else wields the hammer.

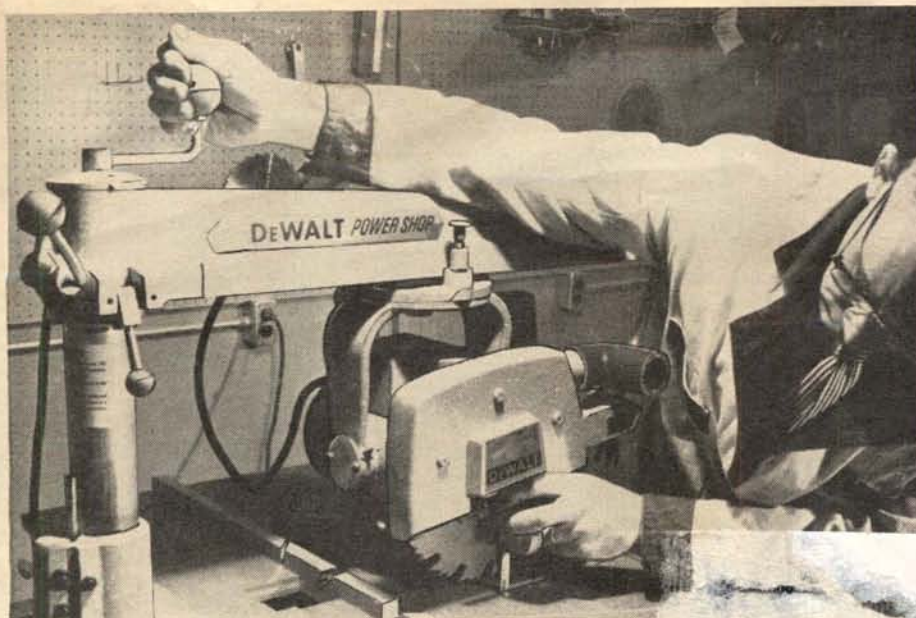


FIG. 1. Each full revolution of crank raises or lowers saw $\frac{1}{8}$ in., but rule is used for critical measurements when cutting grooves, dados, etc. Overhead saw can duplicate any table-saw operation.

SAWS:

Radial-Arm and Portable

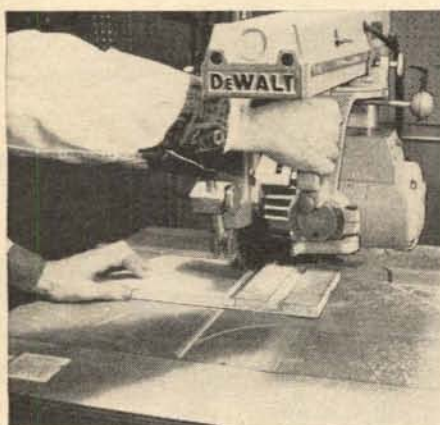


FIG. 2. Seldom is need for dado blade with radial-arm saw. Cuts are made along edges of groove, waste then is removed by moving work sideways, cutting back and forth with blade.

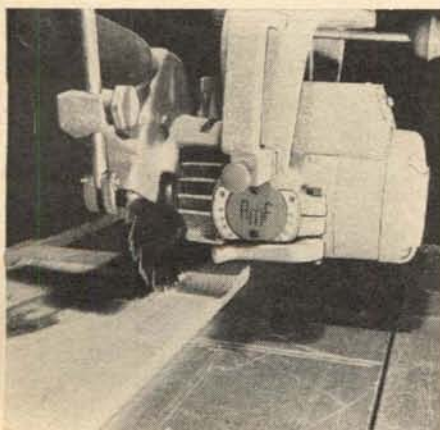


FIG. 3. "Plowing" operation that is difficult on table saw is no problem with radial-arm setup. Changing angle of saw motor varies width and radius of semicircular plowed groove.

ANY OPERATION that can be done on a table saw can be duplicated on a radial-arm saw. The main difference between the two is that on a radial-arm saw the work is held stationary and the saw blade is pulled through it. A prime advantage of an overhead saw is that you can, at all times, see where the saw blade is cutting and be sure that it is following the line you have drawn.

Figs. 1 through 5 show some of the sawing operations on a DeWalt radial-arm saw. Pioneer in this field of radial-arm units, the DeWalt also is a multi-purpose tool when fitted with

accessories, one of which is shown in Fig. 6. It can be a horizontal drill press, shaper (this requires installation of a special safety guard), saber saw, router and lathe. The 2 h.p. direct-drive motor has a built-in electric brake that quickly stops the motor when the key-type switch is shut off. Removing the key prevents use of the saw by unauthorized persons. A drop-leaf on the front of the saw table prevents the blade being exposed beyond the table where it would be a definite hazard.

The DeWalt is available as bench-model saw, without a stand. It then

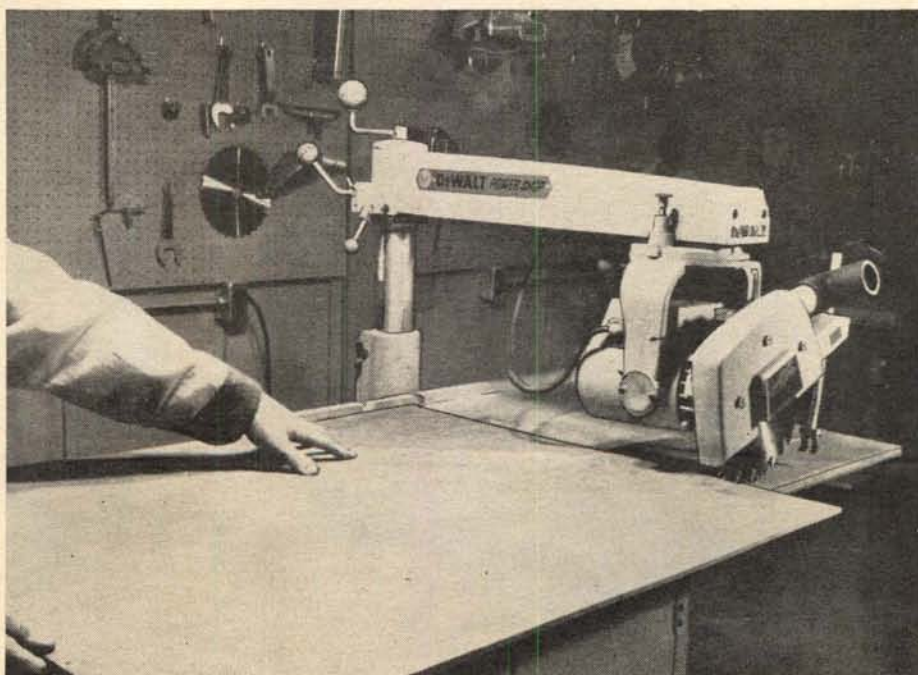


FIG. 4. With rip fence set to rear of table and saw motor in "out-rip" position, radial-arm saw will cut to a width of slightly more than 24 in., permits ripping to center of plywood sheet.

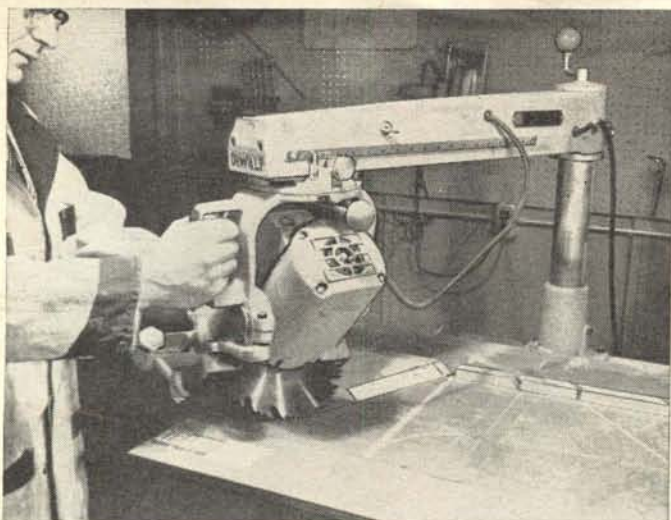


FIG. 5. Compound miters can be set accurately, and the operator can see absolutely that he is cutting to the line marked. At 45 deg. saw runs off table, but table extension will solve this problem.

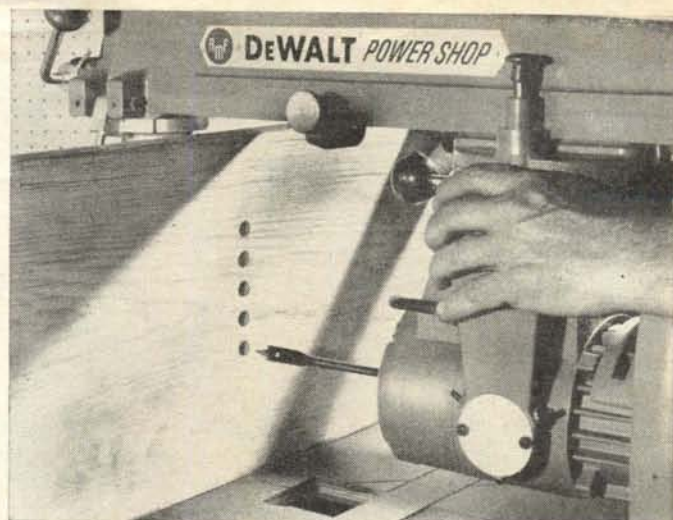


FIG. 6. DeWalt radial-arm saw is "Power Shop" when accessories are fitted on opposite end of motor shaft. It is horizontal drill press, can be disk sander, bits and guard make it shaper.

can be mounted in a workbench so that the bench provides extensions for the saw table. This setup is especially good when long stock must be ripped. Because work being crosscut is held stationary, the same workbench arrangement permits cross-cutting stock of almost any length.

A new entry in the field of radial-arm saws is the Saw Smith, built by the manufacturers of the well-known Shop Smith. Fig. 8 shows its key-locking on-off switch. Removing the key makes it impossible to start. The Saw Smith also has an electric brake that stops the motor and blade quickly. In Fig. 7 the Saw Smith is being used in the "in-rip" position. The saw arm is moved to an angle-cut position in Fig. 9. As with any radial-arm saw, the arm can be locked at any angle, with indexing stops at 90 deg., and at 45 deg. on each side of the right-angle position. An adjustable table that moves backward and forward is a feature of the Saw Smith, as shown in Fig. 10. The inset in Fig. 10 shows the crank at the front of the table that lowers and raises the saw arm on the column. In Fig. 11 the index stop is pulled, the handle twisted to release the saw motor and it then can be tilted in either direction. Below the handle can be seen the speed control that permits varying motor speed from 1700 r.p.m. to 6400 r.p.m.

Combining a radial-arm with a portable circular saw is the feat accomplished by the Shopmate unit. Fig. 14 shows the adapter fitted on the 7-in. portable saw that permits it to be used on the arm. When the saw shoe is removed to provide greater depth of cut, spacers are used with the adapter so it is held tightly on the saw. The guard must be removed when the saw is used on the radial-arm. Because the adapter does not interfere with the uses of the saw as

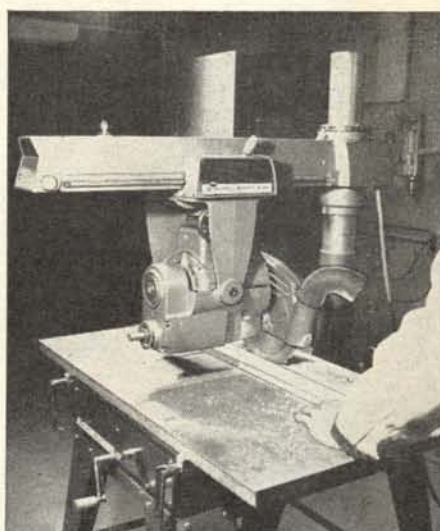


FIG. 7. Stock of any length, up to slightly more than 24 in. wide can be ripped on radial-arm saw, as demonstrated on the Saw Smith. Saw motor is in "in-rip" position here.

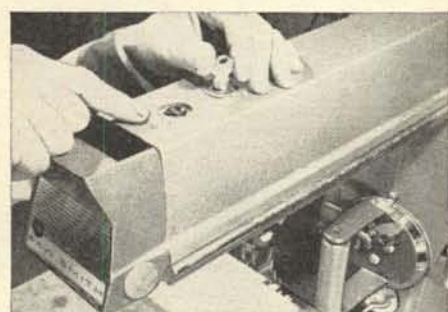


FIG. 8. Key locks push buttons on Saw Smith, prevents unauthorized use of saw. DeWalt has removable switch key. Both saws have electric brakes to stop blade.

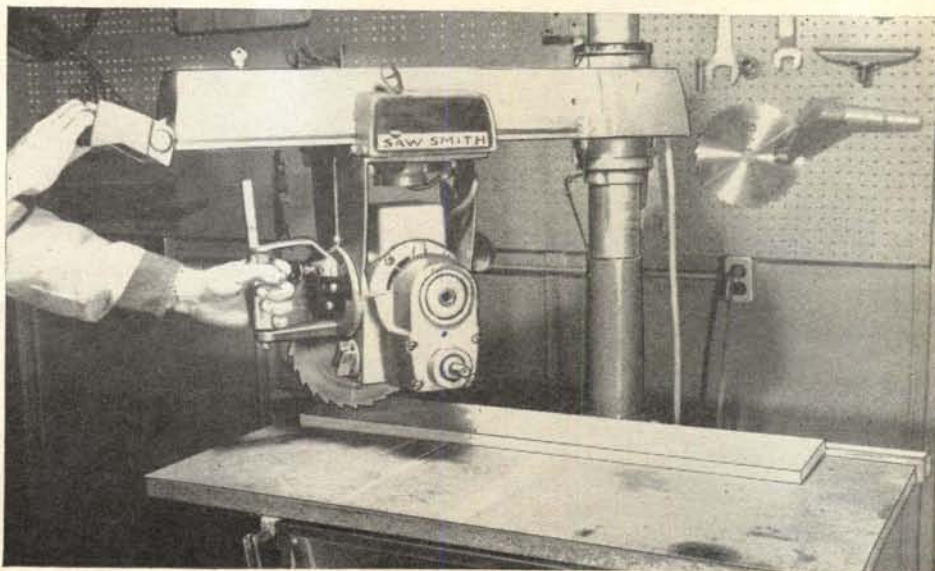


FIG. 9. Arm release for Saw Smith is on end of arm nearest the operator, will lock arm at any angle desired.

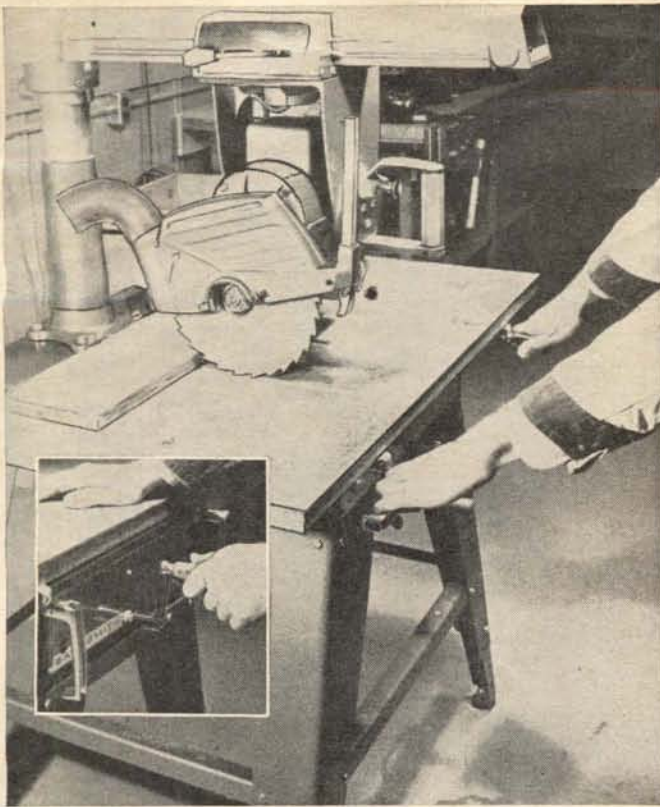


FIG. 10. Table on Saw Smith is released and locked by two levers, can be moved in and out to position rip fence. Inset shows crank at front that raises and lowers saw motor for varying depth of cut.

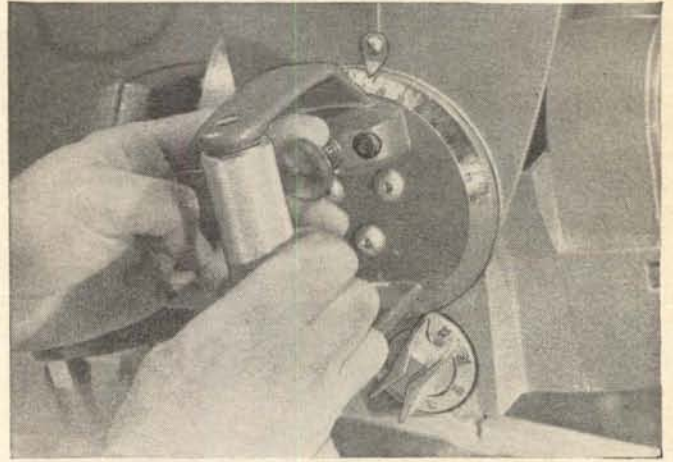


FIG. 11. Twisting handle, pulling out stop, permits saw motor to be tipped at angle. Speed control below handle varies motor speed from 1700 to 6400 r.p.m. for various operations with this tool.

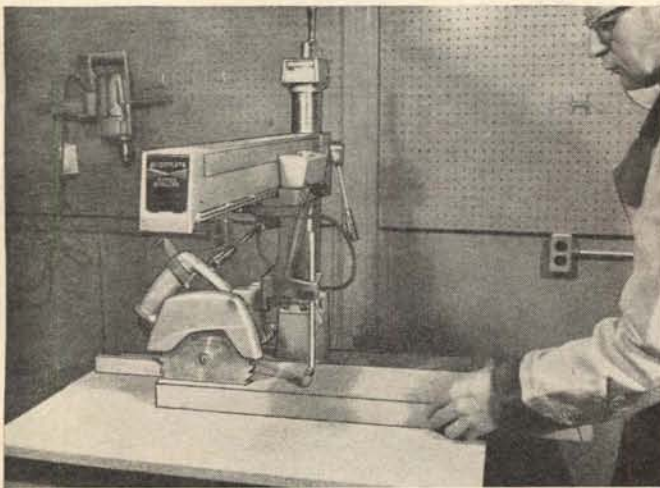


FIG. 12. Late entry in radial-arm field is this Shopmate unit that utilizes portable circular saw. Removing shoe from saw permits greater depth of cut, clamp holds down switch for ripping.

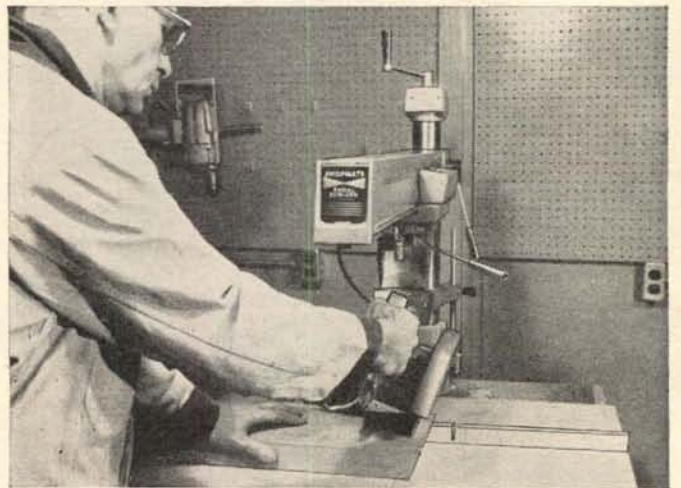


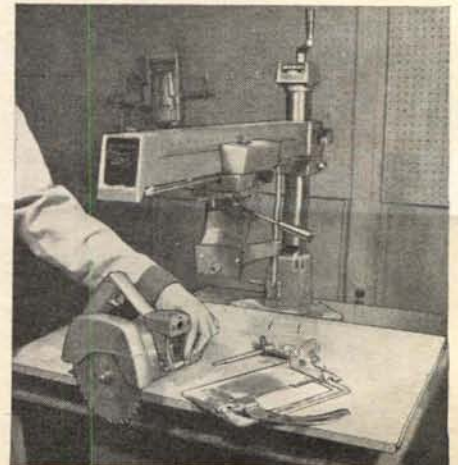
FIG. 13. When crosscutting, trigger switch is pulled and released with finger for greater control, instead of being clamped as when ripping. Saw cuts 2-in. stock with ease.

a portable unit, it can be left on at all times. A single bolt holds the saw on the radial-arm. To keep the switch depressed when ripping with the Shopmate unit, a clamp is furnished, Fig. 12 that simply slips over the handle and switch. When crosscutting, Fig. 13, the trigger switch is depressed and released with the hand that moves the saw. There is no brake on the Shopmate unit, but all other functions of this machine are similar to other radial-arm saws.

For all rough carpentry, up to and including framing an entire build-

ing, there is no more useful tool than a portable circular saw. The Shopmate unit demonstrates this in Fig. 15 where it is being used to cut an opening in a plywood wall. Set just deep enough to penetrate the wood,

FIG. 14. Removal of single bolts permits taking off portable saw. Adapter is kept on saw motor. Finger points to spacers that allow removal of shoe that is on table at right.



it will only slightly mark the studs or wallboard under the plywood. The Speedway unit in Fig. 16 shows clearly the ripping guide available for all portable saws. In Fig. 17 the Stanley Builder's Saw is cross-cutting a wide board. This could be sheathing, siding or roofing boards nailed in place. The Sunbeam saw in Fig. 18 is making a compound miter, such as might be used in the valley of a roof. The Maxaw in Fig. 19 is being used with the rip guide. Situations requiring ripping on the job occur frequently when installing paneling or laying plywood or hardboard underlayment on a floor. In a shop with limited space, and for the man with a limited shop budget, a saw such as available in the Dormeyer drill kit, Fig. 20, will do a lot of cutting and do it well. If you have ever hand-sawed 2-in. lumber, the job being done by the Black and Decker saw in Fig. 21 will prove absolutely the advantages of a portable saw. $\triangle \triangle$

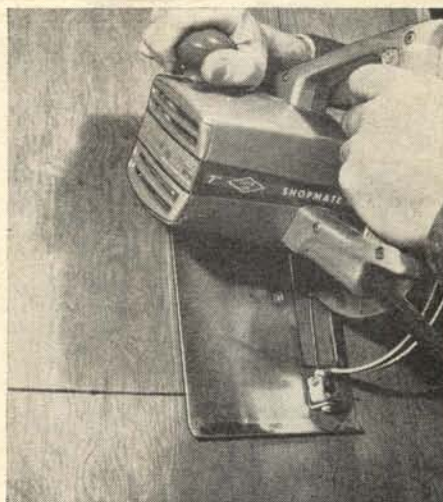


FIG. 15. With portable saw removed from radial-arm it can be used for such jobs as cutting opening in plywood or plaster wall for window or door as shown here.

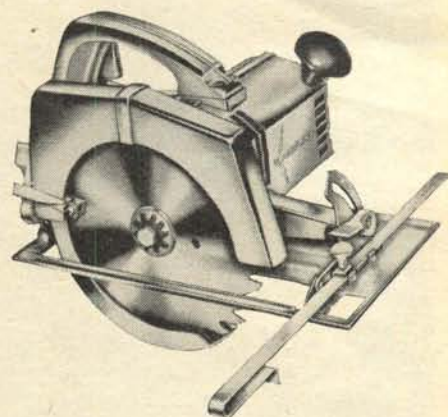


FIG. 16. As with other portable circular saws, Speedway has ripping guide that fits in bracket on shoe. Depth and angle of cut are adjustable.

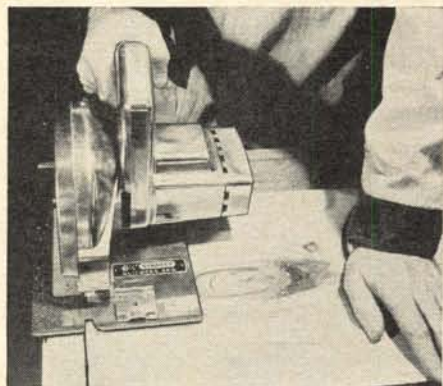


FIG. 17. Stanley Builder's Saw makes fast work of crosscutting wide piece of lumber, does in minutes work that would require hours with an ordinary handsaw.

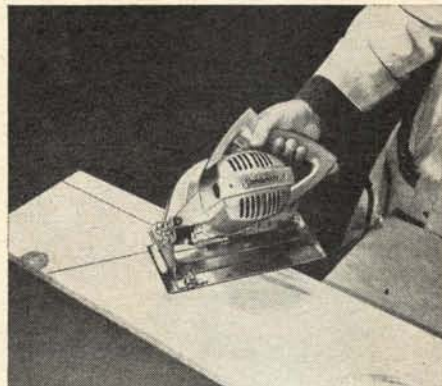


FIG. 18. Versatility of portable circular saws is shown here with Sunbeam being used to make compound miter. One-hand operation is the rule with lightweight portable saws.

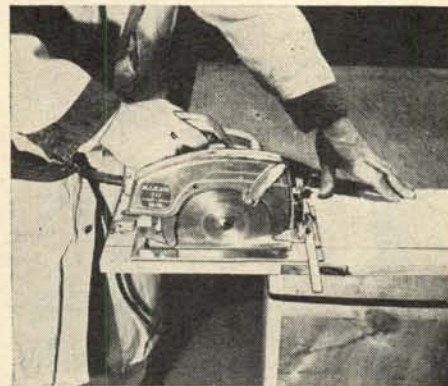


FIG. 19. Rip guide on this Maxaw is being used to permit ripping strip from length of lumber. Used mainly for rough carpentry, portables are quite accurate.

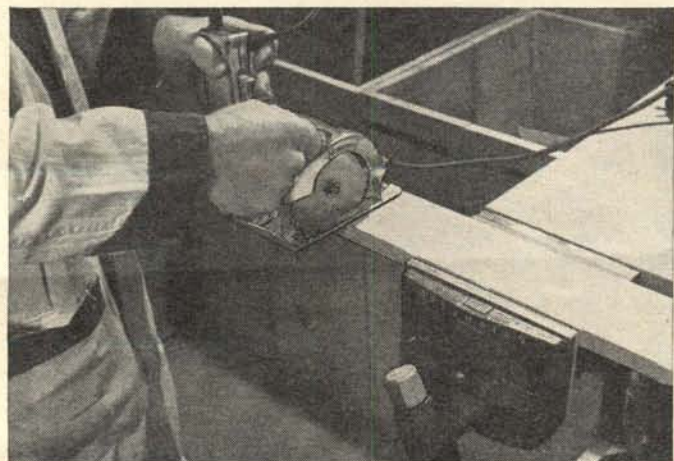


FIG. 20. For the man with limited space and funds, Dormeyer drill kit has circular saw that clamps onto drill motor. For its size, it does a surprisingly good job of cutting lumber.

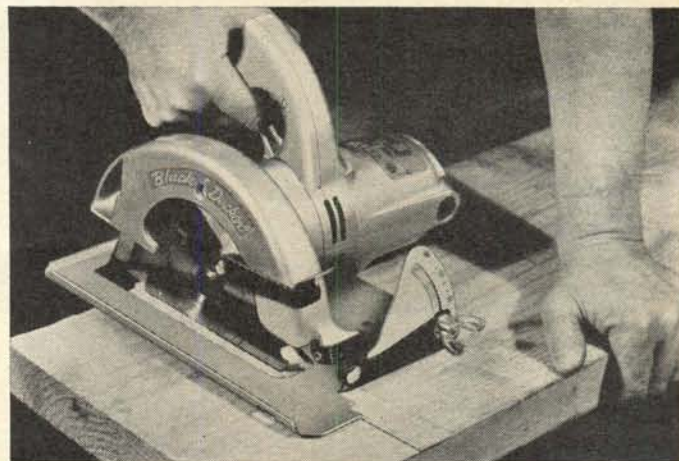


FIG. 21. Even 2-in. lumber can be sawed square or at an angle with portable circular saws with no trouble. In home construction, cutting framing, sheathing and siding, it is ideal all-around tool.



FIG. 1. No cold food here, even the plates are kept hot by the infrared lamps hidden behind the cornice board that is level with this housewife's head. Note switches on wall.

“Hot Lights”

Assure Warm Meals

FRED C. STEBBINS

TOO OFTEN buffet-style dinners are not complete successes because the food becomes cold too quickly. Candle-warmed chafing dishes and other heated containers do help, but are not the complete answer, especially when a meal is served on an outdoor patio. There is a way to keep a complete meal piping hot, including the plates, Fig. 1, without flame and almost without noticeable heat. Pencil-size infrared lamps are the answer. These slender lamps can be fitted in a compact reflector, Fig. 2, easily hidden behind a shallow cornice. Neat, compact installations can be made whether over

a kitchen counter, patio table or a dining room sideboard. The lamps are suspended on standard 3-in. porcelain insulators inside a reflector shaped from do-it-yourself aluminum, Figs. 3 and 4. Strips of flat aluminum are bent to form brackets for attaching the reflector to a wall or other support, Fig. 5. The infrared lamps, 9 in. long, are manufactured by General Electric. Stock number is 500T3. Each lamp produces 500 watts, powered by ordinary house current. A pamphlet, “Infrared Lamps and Their Applications,” (LS-128) may be obtained from the G.E. Lamp Dept., Cleveland 12, Ohio, which gives

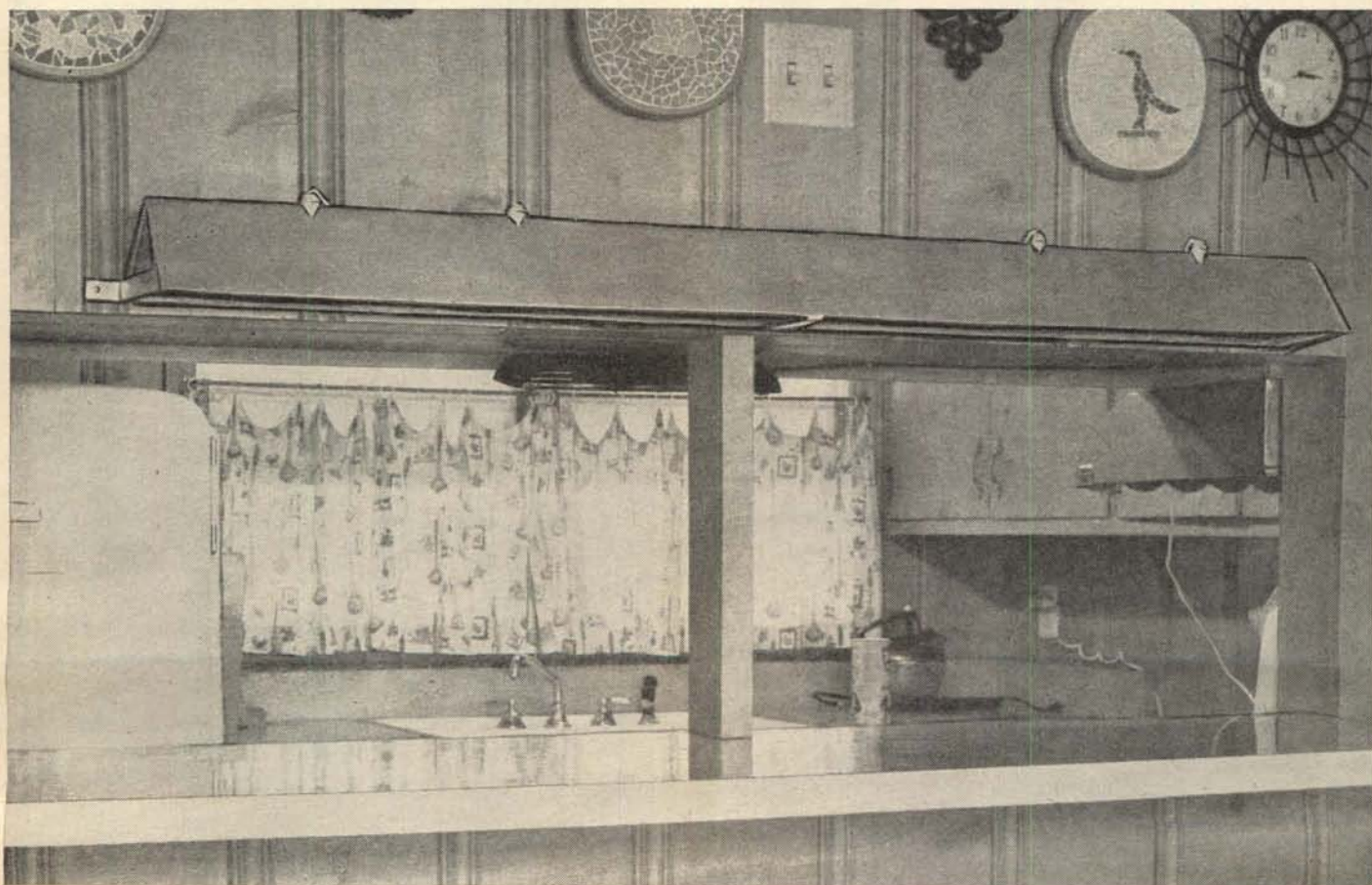
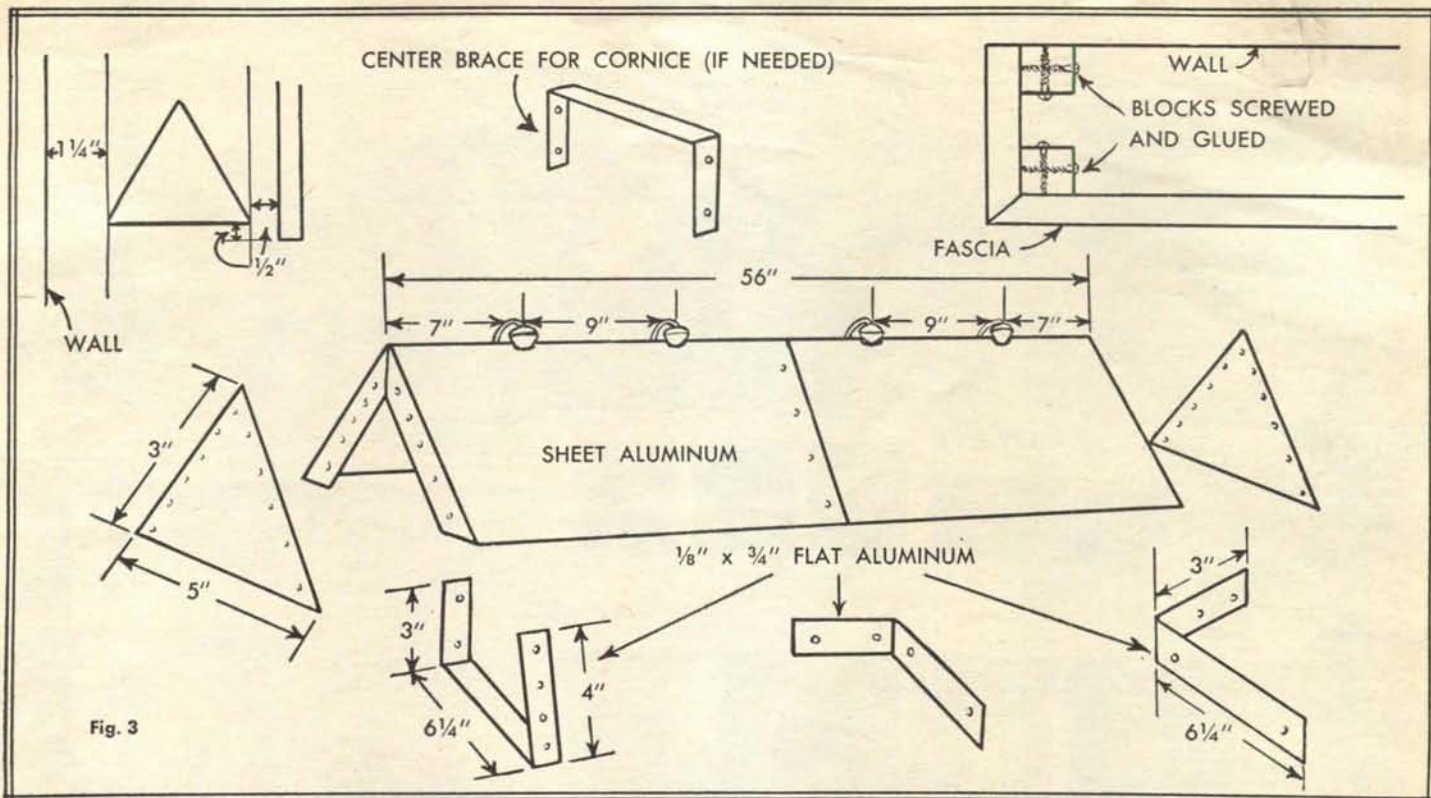


FIG. 2. Here the aluminum reflectors have been attached to the wall by brackets bent from flat aluminum, lamps and wiring installed.



full details, prices and suggested application procedures. Costing around \$7.00, the lamps used are rated at 5,000 hours, or about 39 years at normal use.

Asbestos covered No. 12 wire was used on the original installation, Fig. 5. Some local building codes may require that the wire also be enclosed in a rigid or flexible metal conduit. There must be space between the reflector and the wall and cornice or trim board for heat dissipation. For the same reason, no cover should be fitted on the top of the cornice. Although a triangular-shape reflector is easier to make, a curved reflector would be more efficient. Curved supports bent from flat aluminum would be necessary to support the light sheet aluminum.

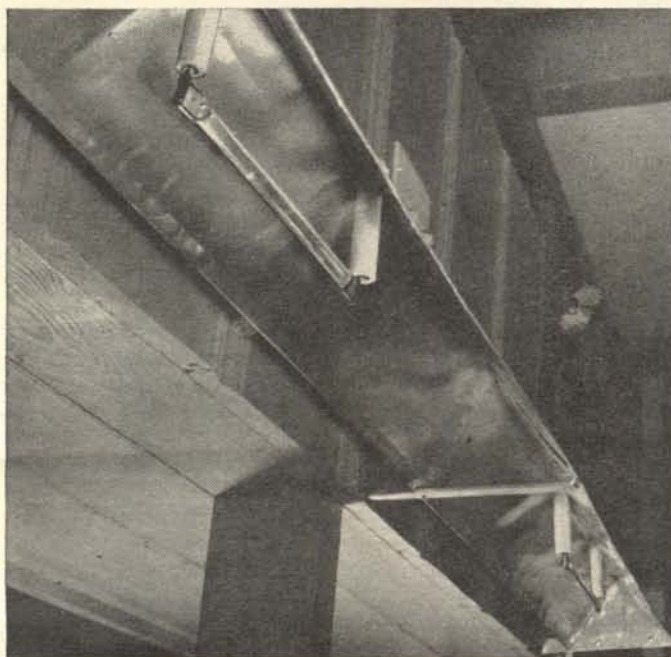


FIG. 4. View of underside of the reflectors show how infrared lamps are suspended from 3-in. porcelain insulators. Edges of light sheet aluminum have been bent back for added rigidity.

The temperature 20 in. below the reflector is about 100 deg. F., hot enough to keep food warm. Using a rack to lift food nearer the lamps will position it in a zone of higher temperature. It will be hot enough to keep meat sizzling hot. Quite close to the lamps, bread can be toasted, should you be so inclined. Each lamp is wired to a separate switch, so that only the lamps required to heat a particular area need be turned on at one time. Because of the size of the sheets of aluminum, it is necessary to rivet two or more sheets together, depending on the size required. A single lamp and reflector can be used for a small area, or any number can be run in a line, or several lines, over a larger surface. Δ Δ

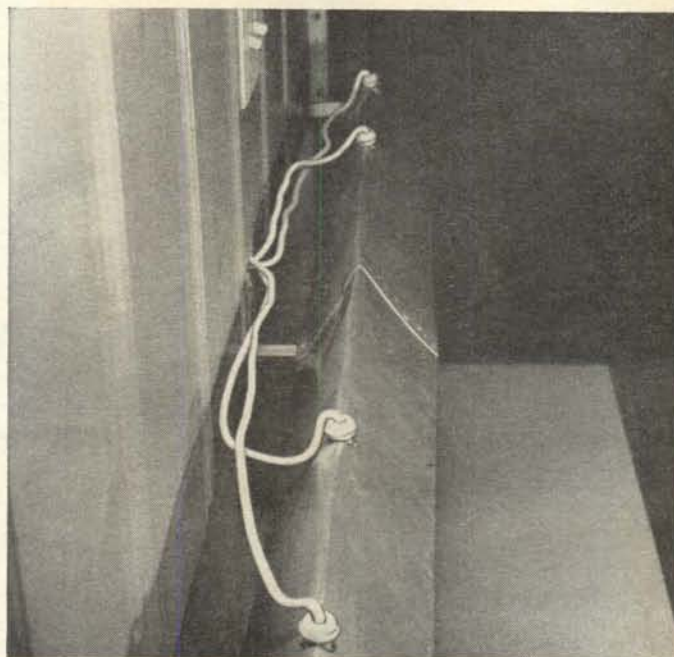


FIG. 5. Looking down on top of reflector shouldered insulators can be seen, as well as asbestos-coated wire. Run along wall behind reflector, wire is completely hidden from view. Note center reflector support.

FIG. 1. Corrugated panel on skylight blends with modern architecture, is hardly noticeable from outside house. Skylight looks well on any home.



"WINDOW" IN THE ROOF

Photographs and information courtesy Structoglas, Inc.



FIG. 2. Hinged panel on ceiling can be opened to reach fluorescent lamps or to clean translucent panels of skylight.

NATURAL DAYLIGHT in every room in the house is an ideal seldom achieved. Center hallways receive natural illumination only through the doors of rooms opening onto them. Still another lighting problem occurs when a room is added on to a house, and windows must be sealed. The answer to both these problems is a "window" in the roof. Once considered a feature to be found only on the roofs of factories and commercial buildings, or an artist's studio, skylights have been updated by modern design and materials so that they blend well with the architectural style of any home of any price range, Fig. 1.

Flat and corrugated panels of high-strength, translucent glass fiber, in a variety of colors, permit a homeowner a wide choice of decorating effects when he installs a skylight to solve a lighting problem. In areas where constant sunlight is the general rule, he might want the skylight to be fitted with green or blue panels to soften the light. In parts of the country where a bright sun is not an everyday occurrence, a plain white color might be better. Skylights can be installed in both flat and sloping roofs, Fig. 4. Construction is fairly simple, consisting mainly of a weathertight frame with a translu-

cent panel fastened to the top in such a manner as to be weathertight. Because the skylight becomes part of the roof structure, the frame members are fairly heavy. As indicated in the drawings, the frame is fitted directly on the rafters or roof beams. The beams are doubled around the opening made for the skylight, both to compensate for removal of sections of roof members and to provide added strength to support the extra weight of the skylight. A wood or fiber cant—wedge-shape strip—is fitted between the roof and sides of the skylight. This permits flashing and roof-covering materials to be run up the sides to provide a weathertight seal between the roof and frame, as well as an angle to shed water. Note in Fig. 4. that fluorescent lamps have been installed inside the Structoglas-designed skylight shaft. These lamps provide diffused light at night. A flat panel of Structoglas, Figs. 2 and 3, is fitted in a hinged frame in the ceiling to diffuse the light and to provide an insulating effect. In areas of high humidity, a

condensation drain also would have to be installed under the outer panel, or the outer panel might consist of two sheets of Structoglas separated by an air space to provide insulation. As in Fig. 2, the light shaft is painted a bright color to reflect sunlight down into the rooms beneath, no matter at what angle the sun is from the skylight.

In the matter of sealing the joint between the skylight frame and corrugated panels, shaped rubber strips are available to make an absolutely weathertight seal. Corrugated panels generally are used for the exterior covering of a skylight because of their extra strength. $\Delta \Delta$

FIG. 3. Normally dark storage hall receives diffused sunlight during the day, illumination by fluorescent lamps at night.

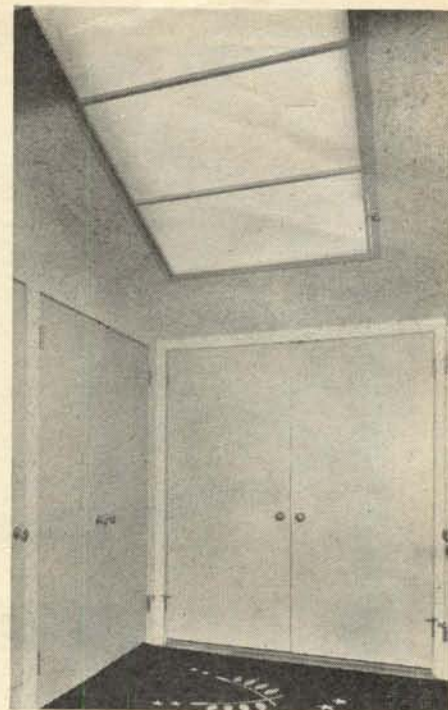
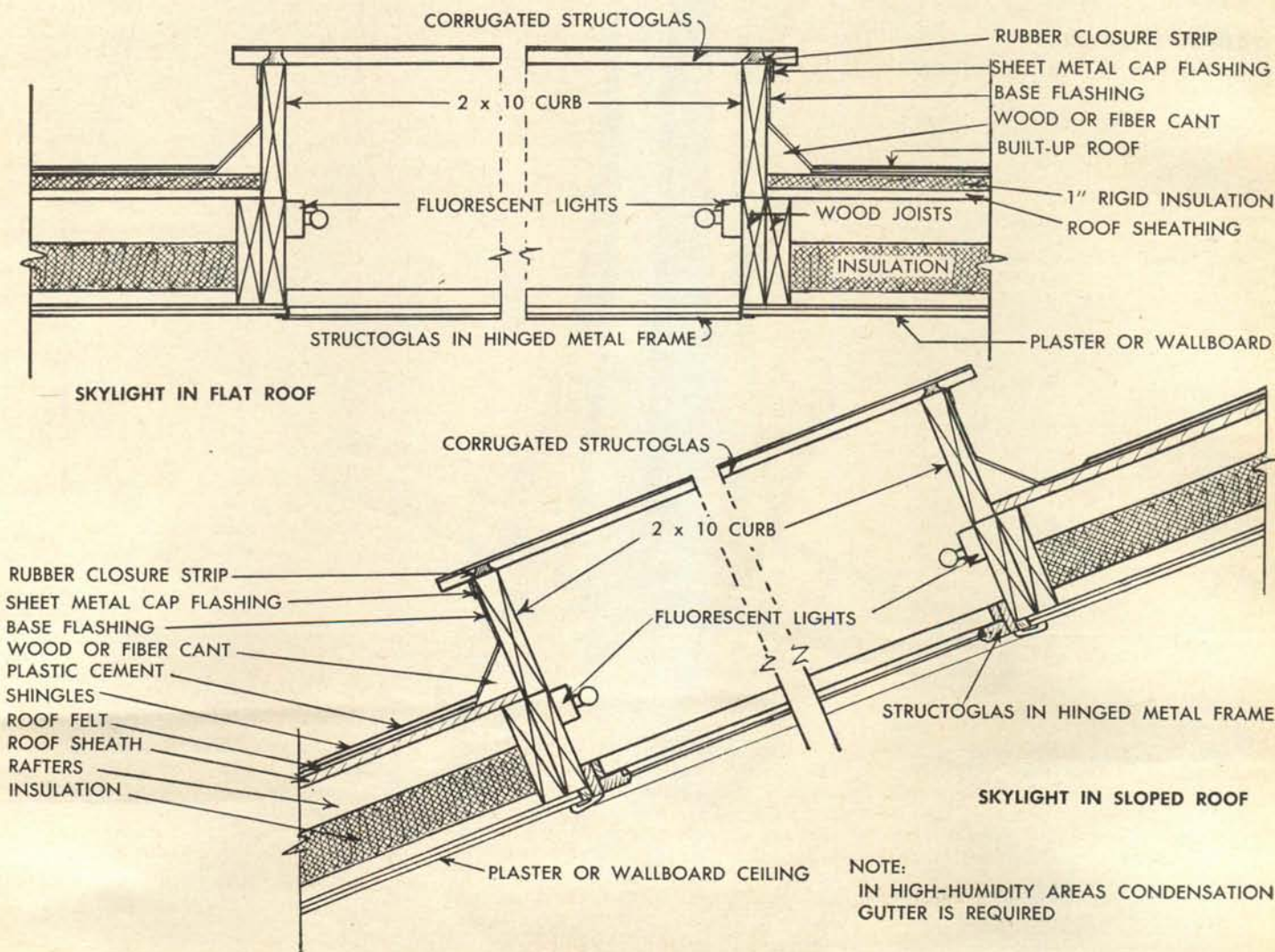


FIG. 4. Drawings below show how skylights are installed in both flat and pitched roofs.





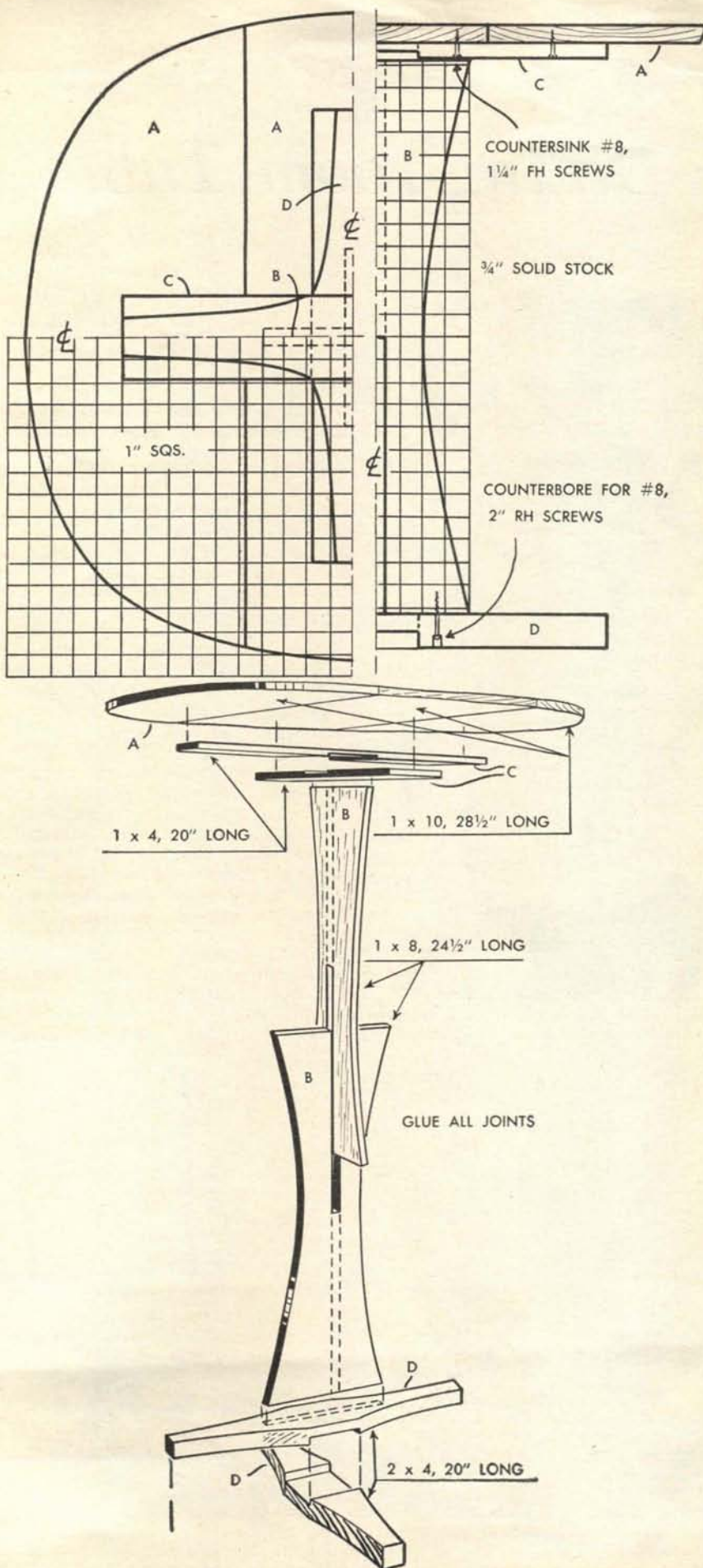
Contemporary Cafe Table

ROBERTA L. FAIRALL

COMPATIBLE WITH modern or traditional settings, this cafe table that is neither too big nor too small will fit well in the coffee corner, breakfast nook or family room. The squared-circle top and sculptured pedestal give it a freshness of style for lasting beauty. Stock-size lumber and easily formed joints make it economical and simple to build.

Begin by laying out full-size patterns that will be used both as "trace-around" templates and to check for accurate placement of joints and screws. Cut all pieces from birch or other solid stock. Cut the table-top boards to correct length and edge-glue and dowel them to make a solid piece. Trace and saw the curved outlines. Slip the "fork-jointed" stem

pieces together, then half-lap both pedestal and cleat boards. Join to the top and bottom of stem. Check to make sure the assembly is squared and perpendicular. Turn the pedestal assembly upside down and join to the table top. Chamfer the edge of the top and round off the sharp edges on the pedestal. Finish to harmonize with existing furnishings. $\Delta \Delta$



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Extend Your Dining-room Table

B. J. LATIMER



FIG. 1. Table extender and the kitchen chairs give more than double the seating capacity of the original table. With careful workmanship, the joint between table and extender is not noticeable.

IF YOUR dining-room table is adequate for the family, but becomes too small to handle the addition of out-of-town guests or a holiday crowd, this table extender could be built to handle this need. The extender has only two legs; the end next to the table is held to it by hooks and eyes and barrel bolts, Fig. 3. Eliminating the extra pair of legs provides more seating room, with less problem of crowding a diner's knees, Fig. 4. The pair of legs on the table extender fold so the unit can be stored in a minimum of space during the time there is no need for it.

Dimensions of the top of the table extension can be varied to suit a particular table or situation. The original $\frac{3}{4}$ -in.-plywood top measured 29 x 48 in. to provide a 4-ft. extension. Folding legs were salvaged from a card table, Fig. 2, but folding legs of various types can be purchased from several of our advertisers. The apron on the table extension is cut from 1 x 4 stock. Several mending angles are screwed to the underside of the extension top and the apron members to provide added rigidity, Fig. 5. Top of the extension can be simply painted, or covered with a plastic laminate. Contact adhesives



FIG. 2. Folding legs are bolted solidly to apron of table extender, brackets screwed firmly to sides. Note L-shaped mending brackets between apron and top of table extender that assure rigidity.

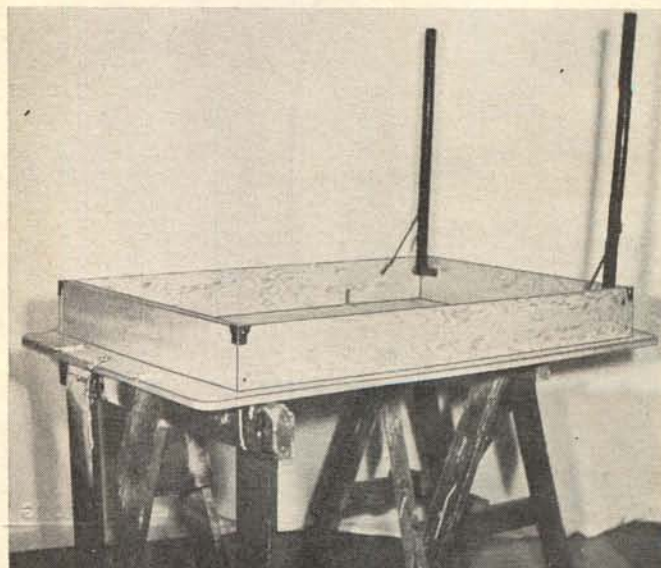


FIG. 3. Two barrel bolts on underside of table extender fit into bolt hardware on underside of table. One hook is shown here, but two hooks and eyes would provide more resistance to pulling apart.

have simplified applying and cementing the laminates so that any home craftsman can do the job. Use of the plastic material does make the extension top much easier to clean. Two barrel bolts are used to align the extension top with the table top. It may be necessary to use blocks on either the table or extension to position the bolts so the tops are aligned. Two hooks and eyes are used to prevent the table top and extension from pulling apart.

With the tablecloth in place and the table set, Fig. 1, only the fact that the kitchen chairs are used on the table extender gives away the secret that this is not a banquet table. Although the drawing in Fig. 5 shows all four corners of the extension top to be cut and rounded, the corners that fit against the table top can be left square for a better fit. If the corners of the table are quite rounded, the corners of the extension top should be rounded the same amount for better appearance. Not absolutely necessary, on the original extension metal corners, of the type used on steamer trunks, were fitted on the lower corners of the extension apron, Fig. 3. This strengthens the apron, and covers the sharp corners. $\triangle \triangle$

FIG. 4. Table and extender shown here without tablecloth demonstrates how eliminating second pair of legs at center of tables provides more seating room, less interference with diner's legs.

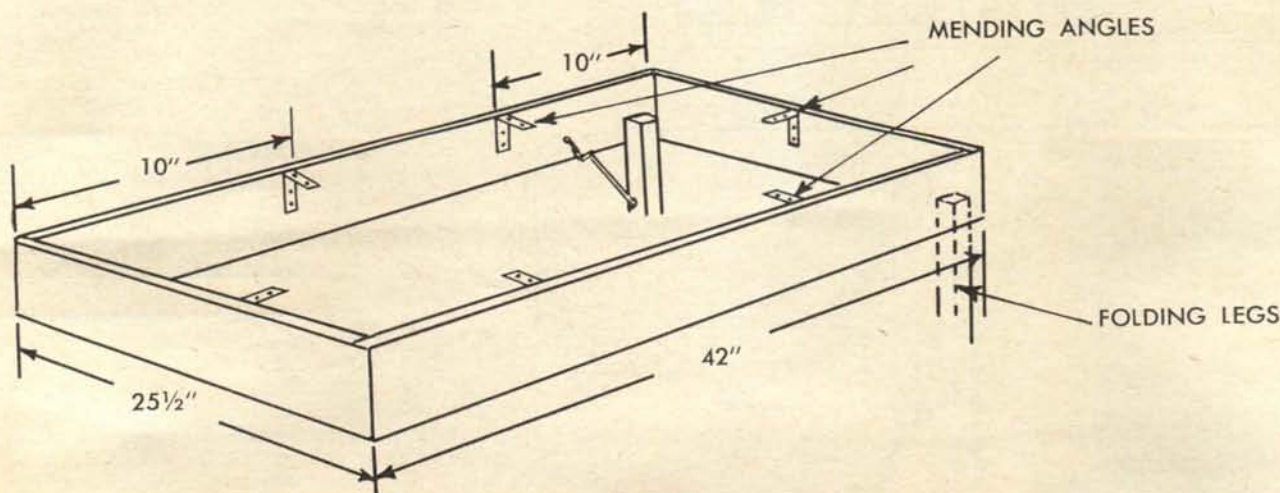
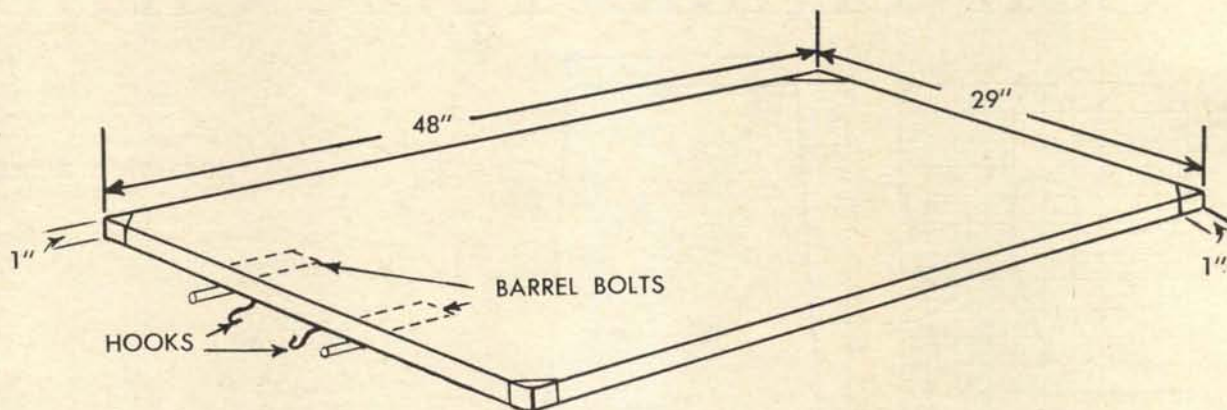
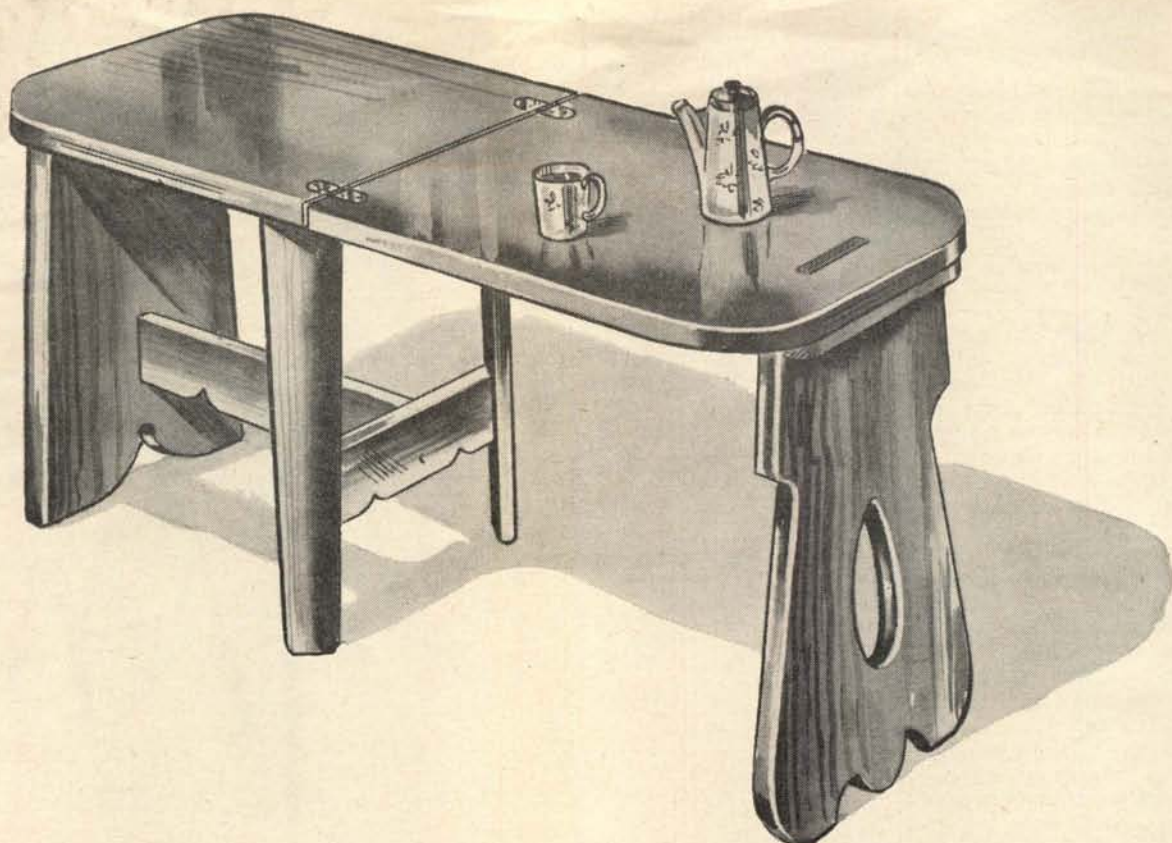
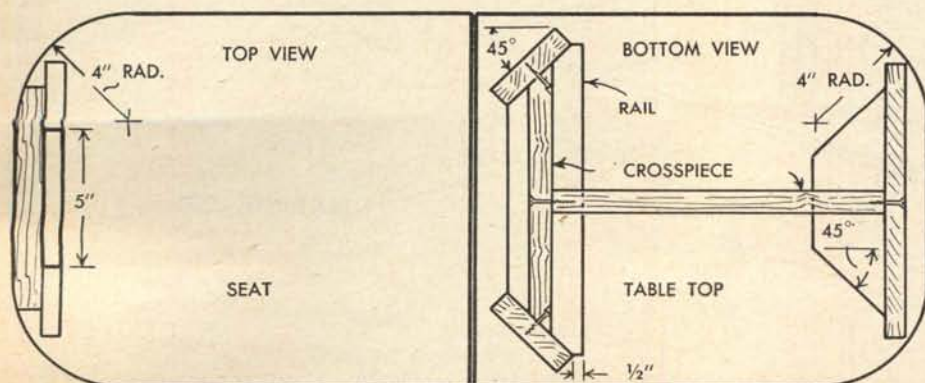
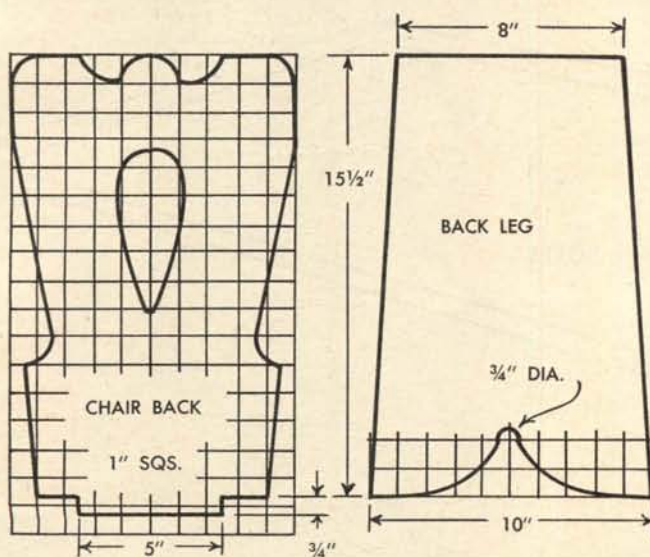


FIG. 5



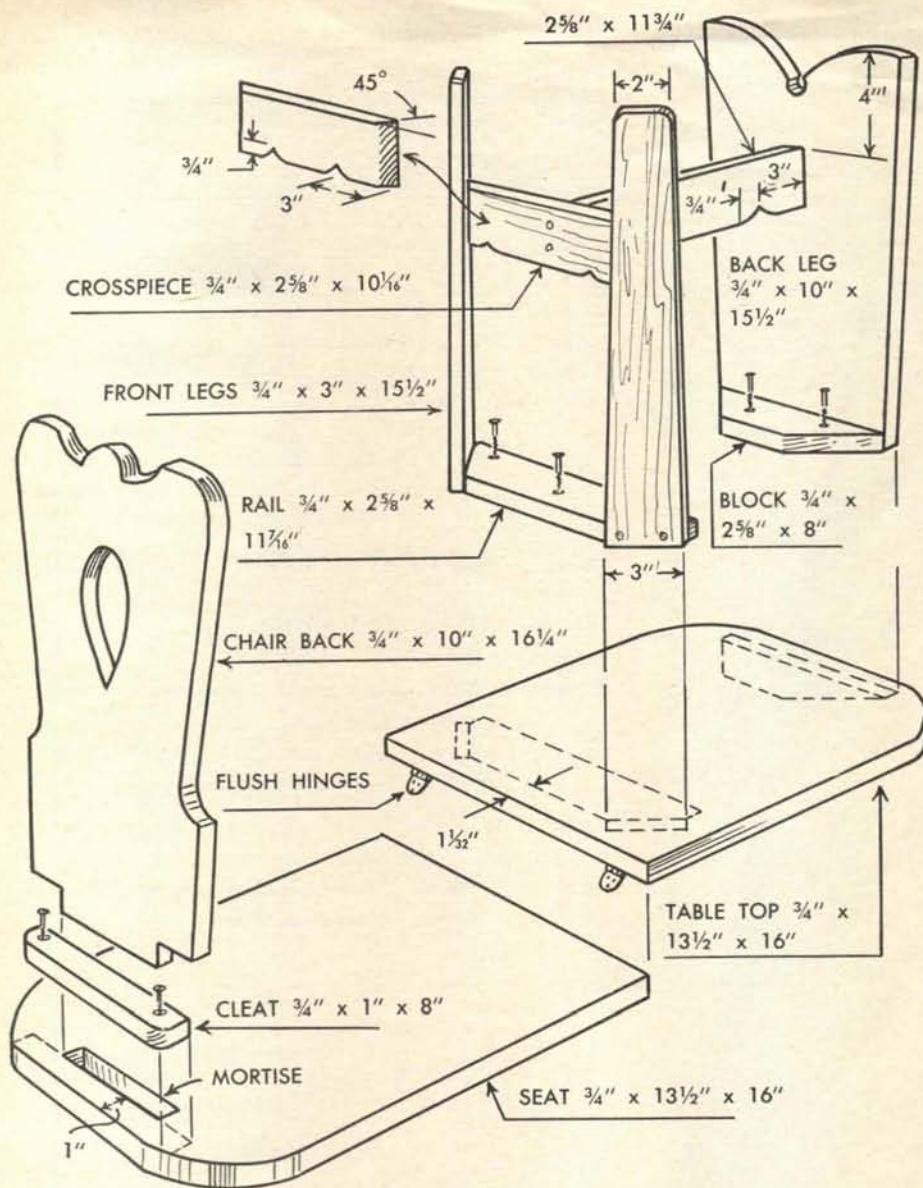
Convertible Table-Chair

ROBERTA L. FAIRALL



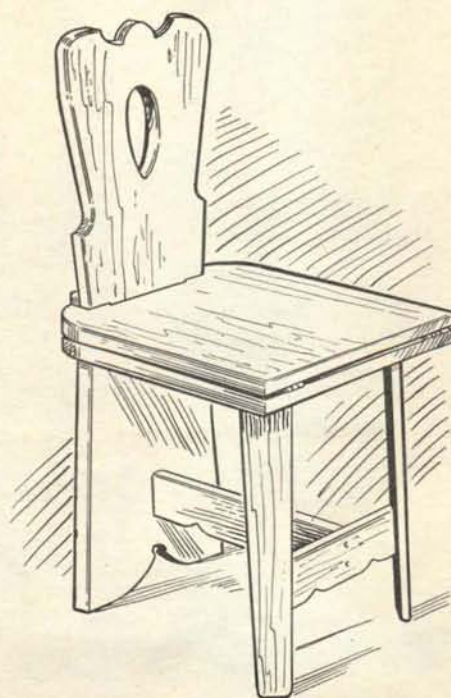
REFRESHINGLY DIFFERENT is this piece of country-style furniture that has space-saving practicality, as well as conversation-starting novelty. The complete table-chair can be cut and assembled from $\frac{3}{4}$ -in. plywood or 1-in. solid stock. If the latter is used, it will be necessary to edge-glue several pieces together to make the chair back, seat and table top. Veneer strips can be cemented to the plywood edges to cover end grain, or the edges can be stained heavily and left uncovered.

First, enlarge the patterns of the chair back and leg to full size, using the squared drawings. Cut them out, then cut the seat and table top pieces. Cut the mortise to fit the chair-back tenon, mark position of block and rail. Cut remaining pieces to dimensions given. Attach cleat to top of



seat and fit chair back. Use glue and screws or nails on all joints. Join tapered front legs to rail and back leg to block, mount on underside of table top and position crosspieces. Assemble seat and table top with flush hinges. Sand all surfaces smooth to receive a finish. Give the wood an over-all coat of light stain of any desired color and wipe away the excess on all flat surfaces. Seal the surfaces with a coat of thinned spar varnish, then finish by applying two additional coats of varnish. Use 4/0 steel wool to rub away the shine, then clean the surfaces and add luster by applying several coats of paste wax.

The flush hinges should be mortised into the table and chair tops as shown in the illustration to present a smooth surface when the table is open, and to permit the surfaces to meet flush when folded to be a chair. $\Delta \Delta$



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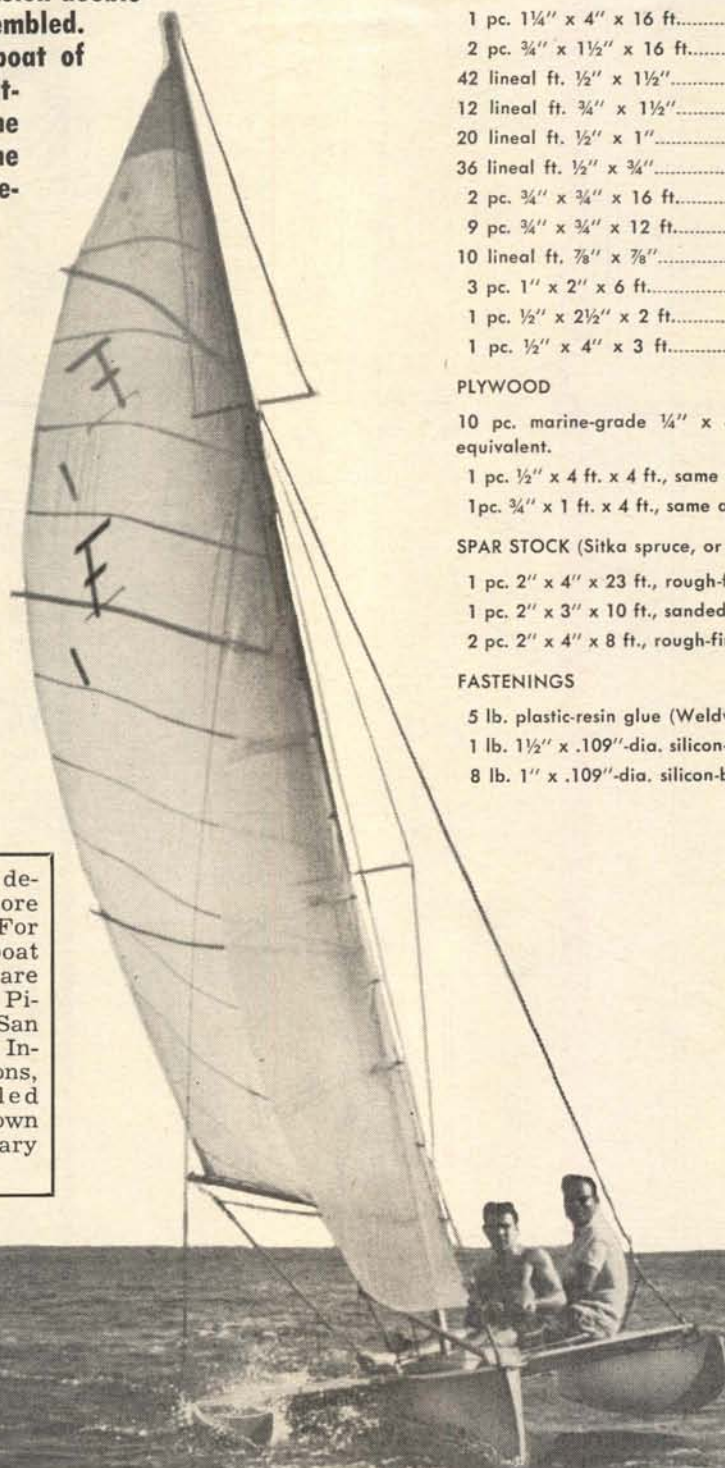
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To assure the utmost accuracy in showing and describing construction of *Frolic* we had the boat built. Each step in construction was photographed and every dimension double-checked as the boat was assembled. We present an easy-to-build boat of unusual performance and built-in safety factors with just one warning: if you build it in the basement, measure the door before starting.



CONSTRUCTION OF *Frolic* will be described in this and two more issues of WORKBENCH. For those who want to build the boat more quickly, full-size plans are available from the designer, Pi-Craft, 344 Sacramento St., San Francisco 11, Calif., for \$15. Included are complete instructions, economy tips and detailed methods of making your own set of sails with an ordinary home sewing machine.

MATERIAL LIST

Lumber list for *Frolic*—all dimensions net (use lightweight boat-building wood, fir, white pine, yellow pine, spruce, etc.)

1 pc. 1 1/4" x 4" x 16 ft.	Keel
2 pc. 3/4" x 1 1/2" x 16 ft.	Chine stringers
42 lineal ft. 1/2" x 1 1/2"	Frame-nailing strips, etc.
12 lineal ft. 3/4" x 1 1/2"	Misc.
20 lineal ft. 1/2" x 1"	Misc.
36 lineal ft. 1/2" x 3/4"	Misc.
2 pc. 3/4" x 3/4" x 16 ft.	Deck stringers
9 pc. 3/4" x 3/4" x 12 ft.	Float stringers
10 lineal ft. 7/8" x 7/8"	Daggerboard case, etc.
3 pc. 1" x 2" x 6 ft.	Main-deck beams
1 pc. 1/2" x 2 1/2" x 2 ft.	Stem
1 pc. 1/2" x 4" x 3 ft.	Stopwater

PLYWOOD

10 pc. marine-grade 1/4" x 4 ft. x 8 ft., good two sides or equivalent.

1 pc. 1/2" x 4 ft. x 4 ft., same as above

1 pc. 3/4" x 1 ft. x 4 ft., same as above

SPAR STOCK (Sitka spruce, or next best obtainable)

1 pc. 2" x 4" x 23 ft., rough-finished, full size

1 pc. 2" x 3" x 10 ft., sanded, four sides

2 pc. 2" x 4" x 8 ft., rough-finished, full size

FASTENINGS

5 lb. plastic-resin glue (Weldwood)

1 lb. 1 1/2" x .109"-dia. silicon-bronze Stronghold boat nails

8 lb. 1" x .109"-dia. silicon-bronze Stronghold boat nails

Sailing Trimaran "Frolic"

Designed by Arthur Piver

SCOTT MORGAN

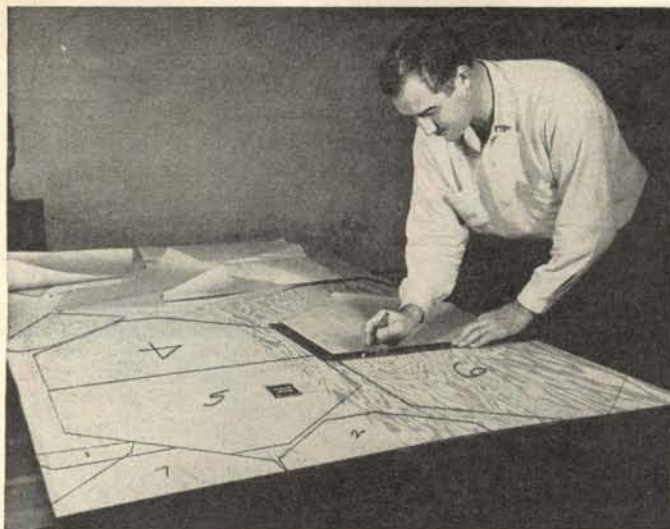


FIG. 1. First step in construction of boat is to make full-size frame patterns on wrapping paper, using half-patterns in Fig. 7, then trace them on $\frac{1}{4}$ -in. marine-grade plywood as shown.

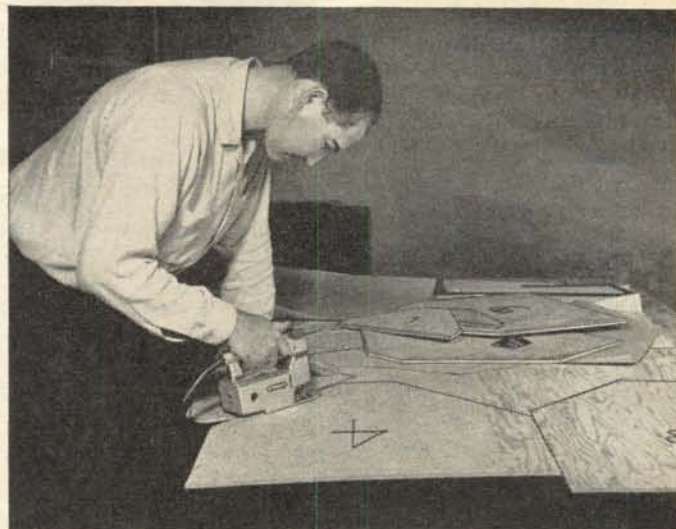


FIG. 2. Electric jig saw makes fast work of cutting bulkheads from plywood, but other saws, or hand tools can be used. Cut outside lines so plywood later can be trimmed when frames are faired to fit the keel.



FIG. 3. It is most important that V-bottom of hull be kept at accurate 90-deg. angle. Framing square is indispensable for this operation. Sander can be used to touch up any irregularities in the bulkhead shapes.

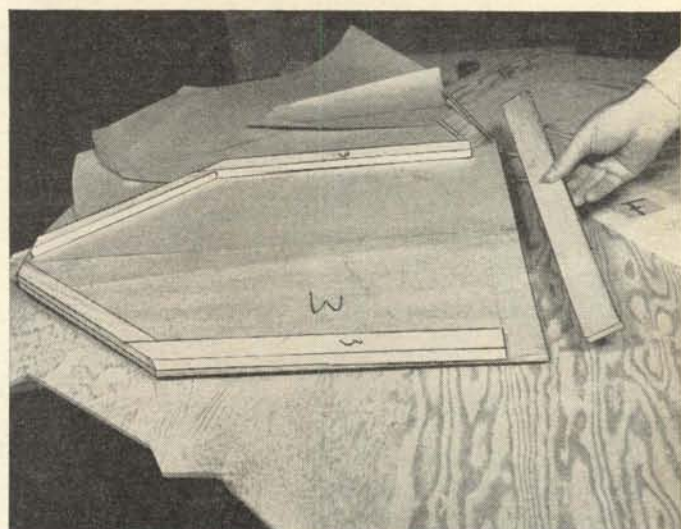


FIG. 4. As final check before nailing and gluing frame members to bulkheads, position frames on pattern over bulkheads. Now is the time to catch any errors in construction, not after fitting in boat.

BOTH SAFETY and performance have been designed into the *Frolic*, so that it has none of the limitations of the usual multi-hulled boat. *Frolic* is light (250 lb.) for the sail area (140 sq. ft.) yet has a beam of 8 ft. for a length of 16 ft. which assures stability. The 8-ft. beam also permits the boat to be hauled on a trailer. With a top speed of 15 to 20 m.p.h. in a brisk blow, *Frolic* still is quick and maneuverable in a ghosting wind. Sealed floats and self-draining foot wells add to the craft's seaworthiness. Here is a 2-man boat that can be built by anyone handy with tools, and for a minimum outlay of cash.

Construction of the *Frolic* starts with the main, or center, hull, Figs. 5 and 6. Frame patterns are drawn full size on wrapping paper, then

bulkheads for each frame are outlined on sheets of $\frac{1}{4}$ -in. marine-grade plywood (our material was Royal Marine Weldwood Plywood manufactured by The United States Plywood Corp.) as in Fig. 1, using a straight-edge to keep patterns flat and as a guide for the pencil. Half-patterns for the frames are shown in Fig. 7. Position the patterns on the plywood so there is a minimum of waste. An electric jig saw makes fast work of cutting out the bulkheads, Fig. 2. Cut to the outside of the pattern lines, to allow sufficient material for trimming when fairing (beveling) frames to receive the planking. After the bulkheads are cut out, check each one, Fig. 3, with a square to be sure that the lower edges form a 90-deg. angle. Also note that each bulkhead

is plainly numbered to save time during assembly. As a final check before nailing and gluing frame members to the bulkheads, they are positioned on the patterns, as shown in Fig. 4. Each step in construction should be double-checked. Frame members are attached to the bulkheads, Figs. 8 and 10, with Weldwood plastic-resin glue and silicon-bronze, 1-in. No. 109 Stronghold nails. Projecting ends of the nails are hammered over. As indicated in Fig. 8, chine and sheer-stringer notches are cut in the frame members before they are attached to the bulkheads. Fig. 9 shows how the jig saw permits fast cutting of the notches in the plywood after the notched frames are attached. Finished bulkheads now are positioned on a strongback, built to the dimen-

sions given in Fig. 11. Doubled 2 x 4s, shimmed true and level were used for our construction; a flat wooden floor also could be used. Stretch a chalkline down the center of the strongback and center all frames on it. Each assembled frame now is nailed lightly to cleats spaced on the

strongback according to dimensions in Fig. 11, then positioned at right angles vertically and horizontally to the strongback. Upper ends of the frames are held in alignment with scrap stringers tacked to them, Fig. 12. Next, a fairing strip is sprung over the frame bottoms, Fig. 13, to

determine the amount of fairing necessary to obtain a flush fit. Fig. 14 illustrates how a wood rasp is used to fair the frame bottoms. Check frequently with the fairing stringer to avoid removing too much material. After the keel is glued and nailed to the frames and the stem, Fig. 15, a

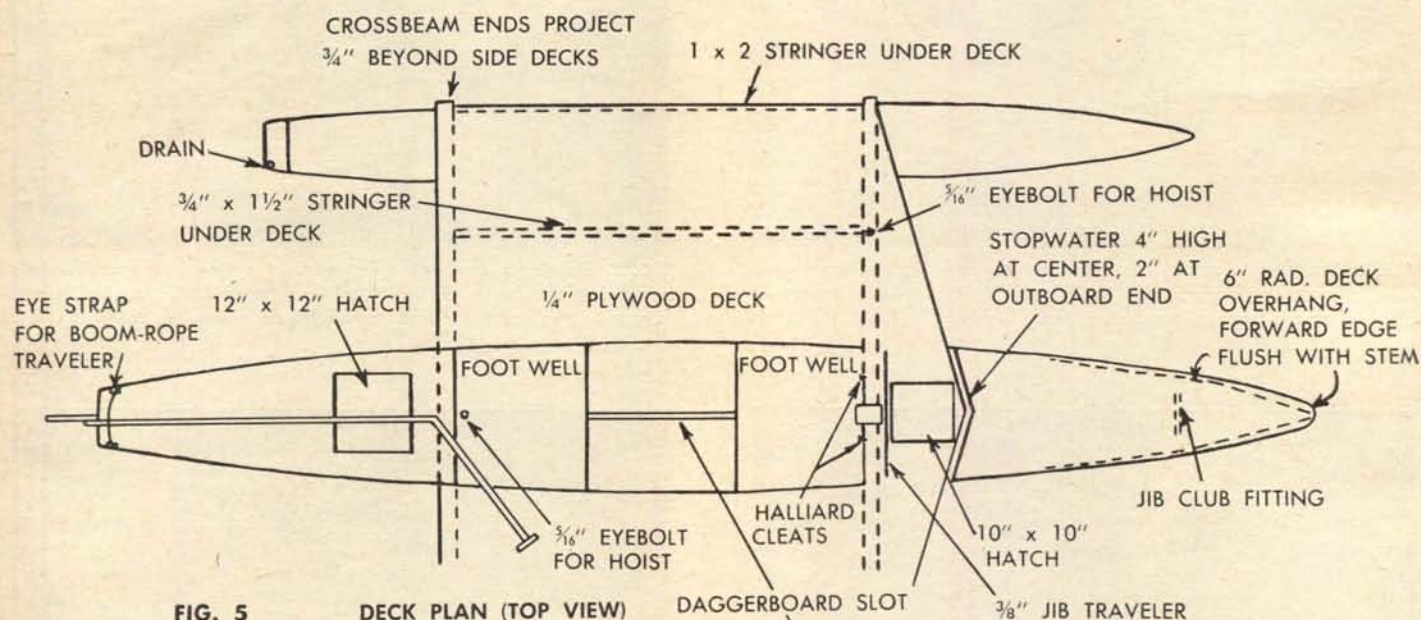
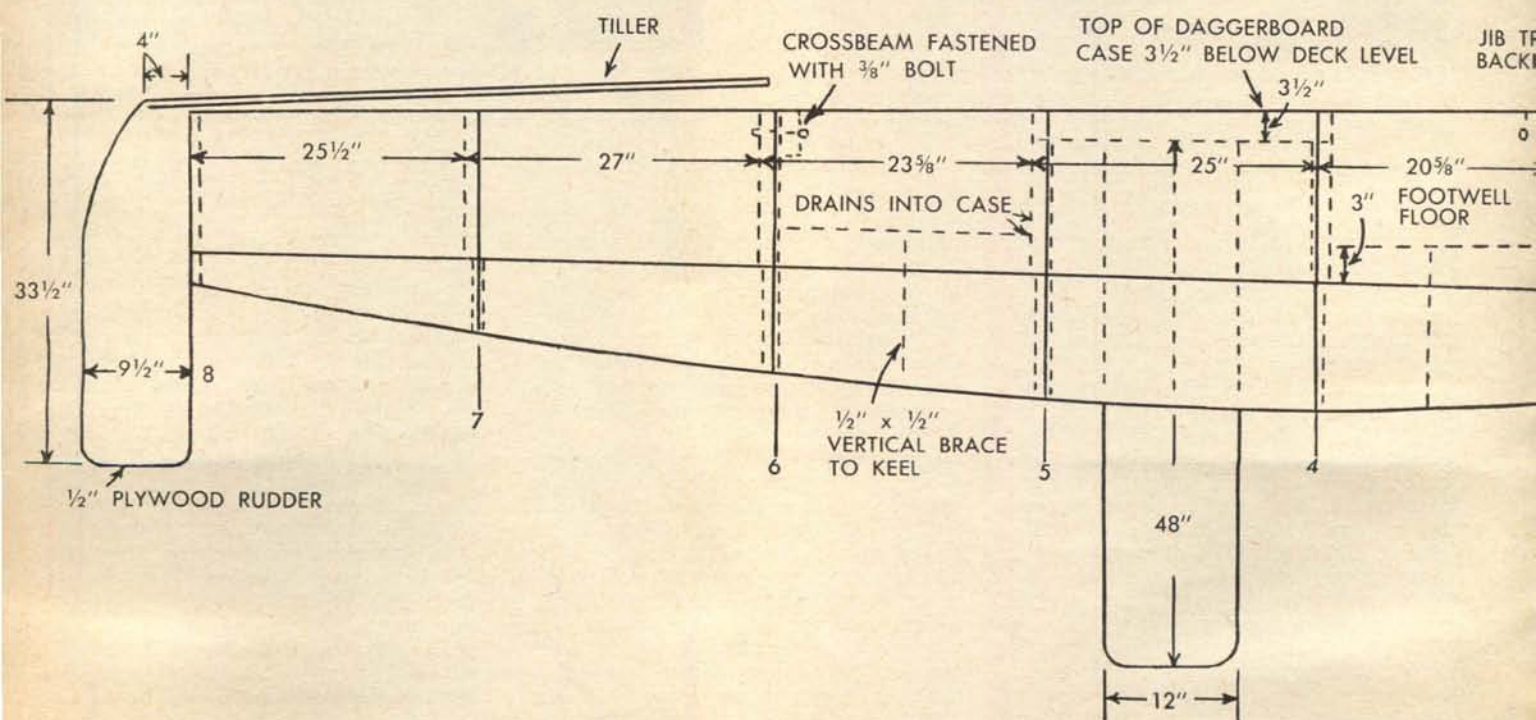


FIG. 6 SIDE VIEW OF HULL THROUGH CENTERLINE



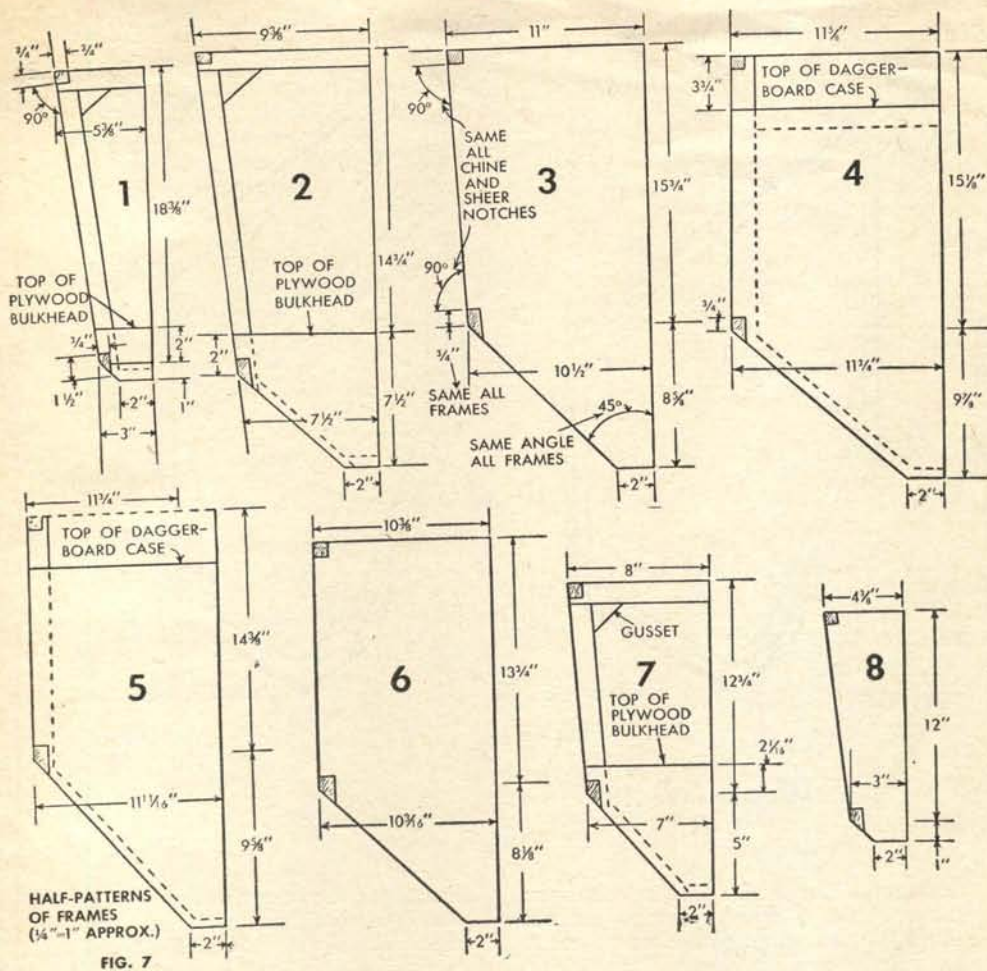


FIG. 8. Frame members are glued and nailed to bulkheads. Nails are driven from both sides, projecting ends hammered over and clinched. Notches are cut in frame members before assembly, as shown.

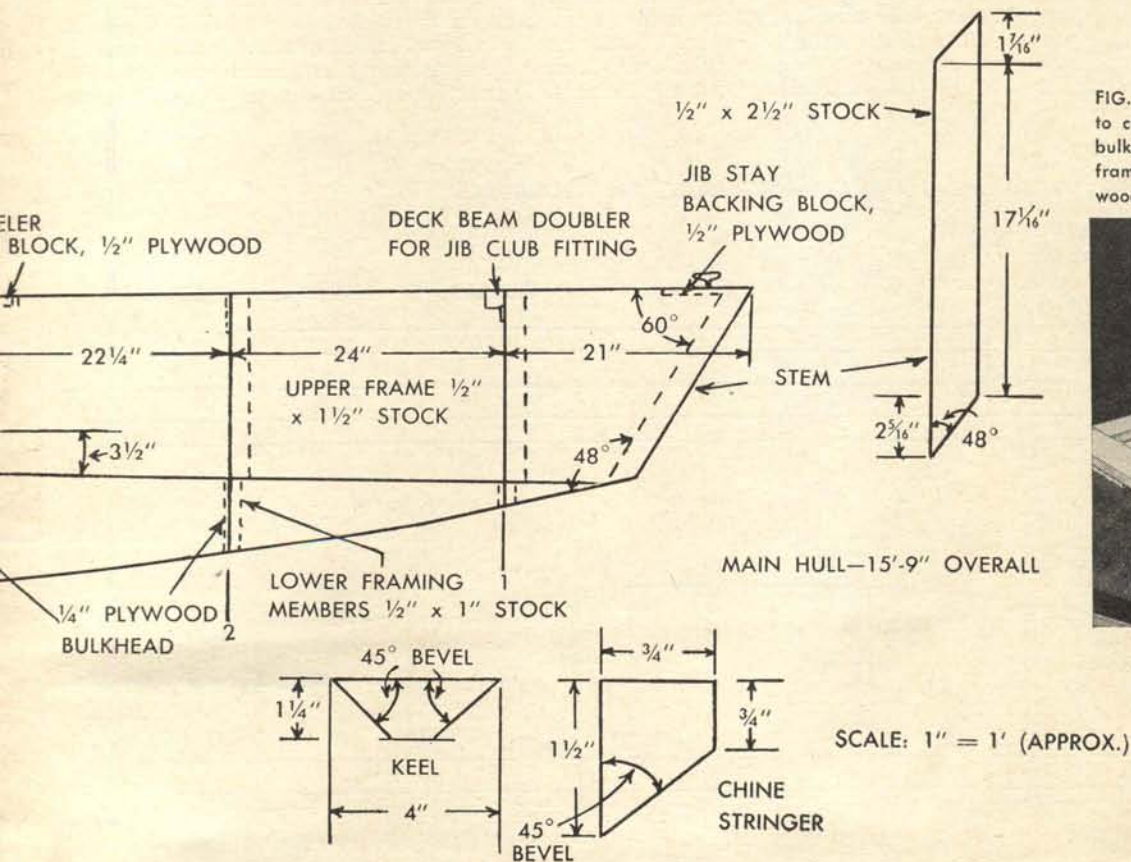
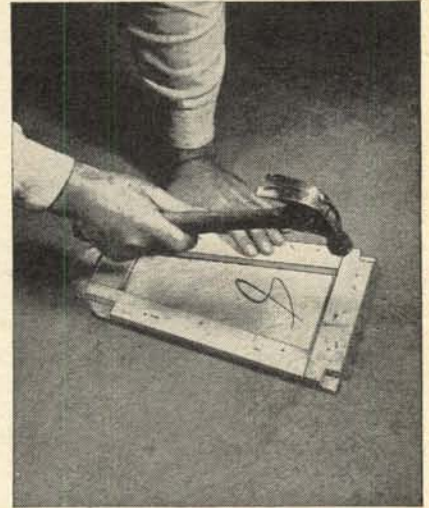
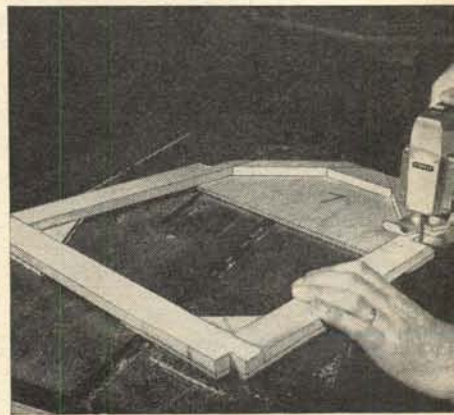


FIG. 9. Electric jig saw or handsaw is used to cut notches in plywood after frames and bulkheads have been assembled. On this frame, 7, bulkhead runs only part way, plywood gussets reinforce upper corners.



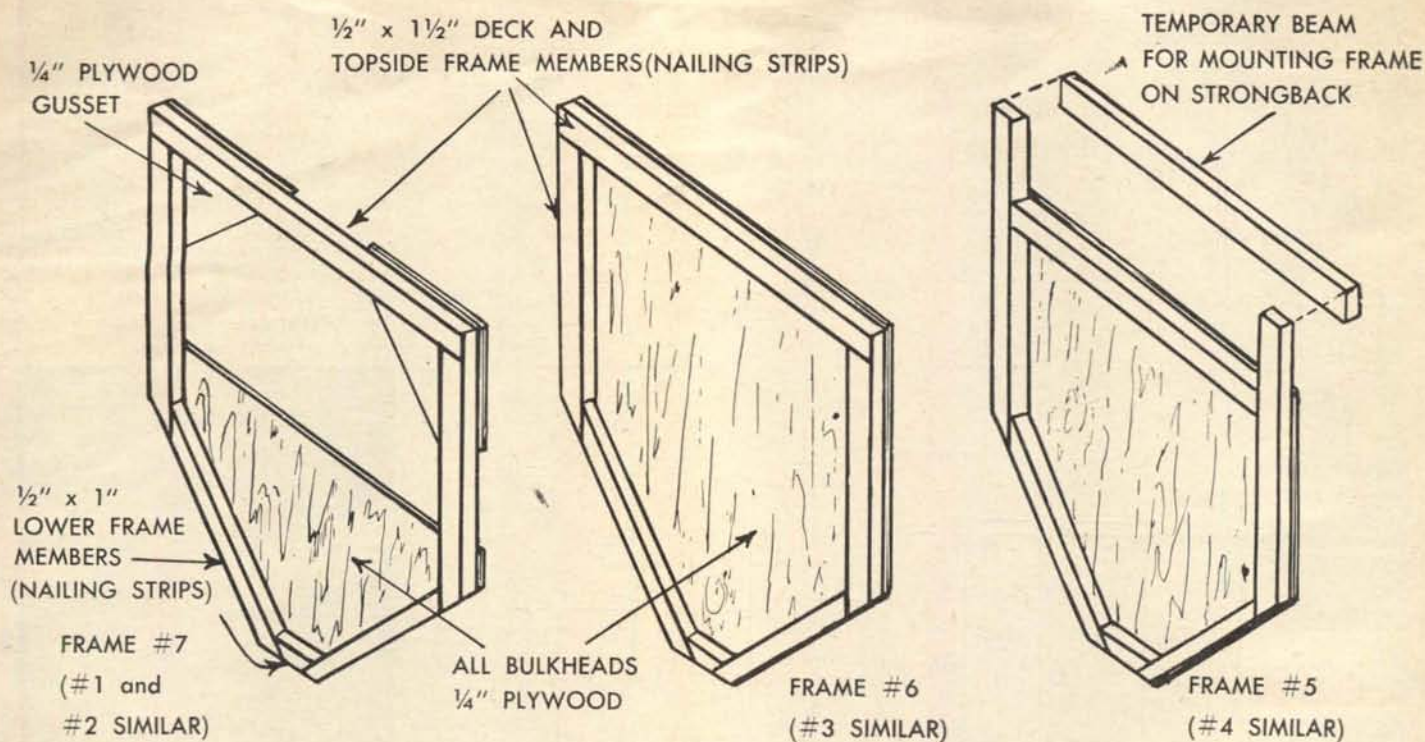


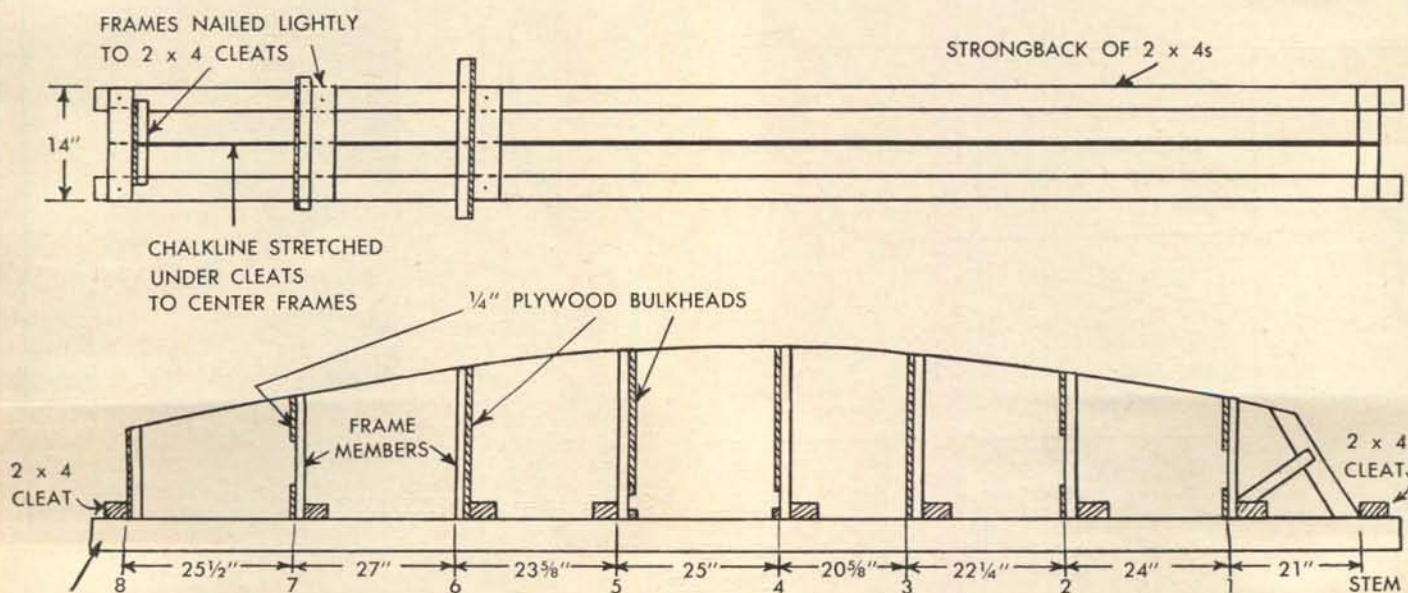
FIG. 10 FRAME CONSTRUCTION

prop is wedged between the keel and basement joists to prevent the spring of the keel from pulling the bow section out of line. The prop is removed after the chine and sheer stringers are installed. It also must temporarily be removed while fitting chine stringers to the stem. Fig. 16 shows how a portable sander can be worked

across the keel and chine bevels near the transom frame to assure perfect fit of the planking. Much waste must be removed when fairing the chine and keel at the bow, so it is best to start with a plane, follow with a rasp, then finish with a sander. Check the bottom angle frequently to keep it at 90 deg. When cutting bottom planking,

first tack or clamp each plywood panel in position with its straight edge along the chine, Fig. 19, and mark along the keel and chine. Allow 1/2 in. excess at top and bottom to be trimmed after the planking is glued and nailed in place. Fig. 20. shows the planking in place, with a necessary butt joint between frames 4 and

FIG. 11 POSITIONING AND ALIGNING FRAMES ON STRONGBACK



STRONGBACK MUST BE LEVEL,
WHETHER 2 x 4s OR WOODEN FLOOR

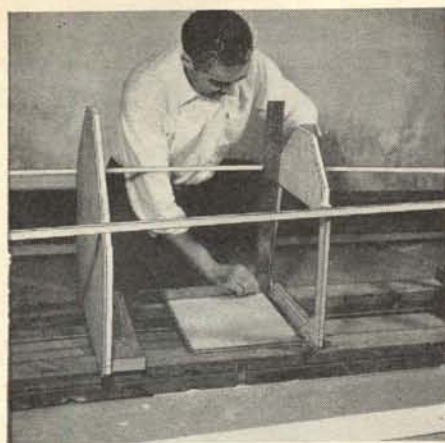


FIG. 12. Assembled frames are tacked lightly to strongback at points indicated in Fig. 11, then positioned exactly at right angles, vertically and horizontally, to strongback. Temporary stringers position the frames.

5. Before installing the daggerboard case, cut the slot in the keel, Fig. 21. The ends of the completed daggerboard case are wiped with glue, then the case is nailed in place, the nails being driven through the frames into the case ends. Note in Fig. 22 that a wooden block is fitted in the keel slot to assure alignment of the daggerboard case. As in Fig. 23, the jig saw again is used to trim the planking along the chine stringer.

Because plywood seldom is available in 16-ft. lengths, the planking is cut from 8-ft. lengths and butted together. Butt blocks 6 in. wide cut from $\frac{1}{2}$ -in. plywood are fastened to the planking with nails spaced about 2 in. apart in staggered rows. Glue also is generously applied to the butt blocks and hull planking.

When fastening the sheer (upper)



FIG. 13. Light stringer is stretched over frames to determine how much each frame must be faired (beveled) so it bears flush against the keel for full and solid support of framework.



FIG. 14. Wood rasp is used to fair each frame to fit it flush against keel. Gauge with fairing strip frequently to prevent removing too much material. This operation is important, takes time and patience.

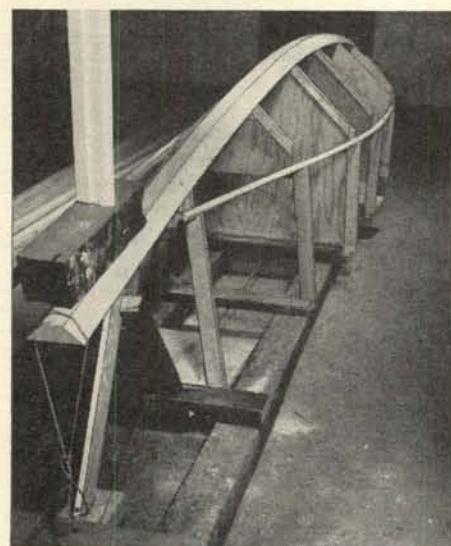


FIG. 15. After keel is glued and nailed to frames and stem, it will be necessary to use prop between keel and basement joists—or garage joists—to prevent it pulling bow out of line. Keel is not notched or steamed.

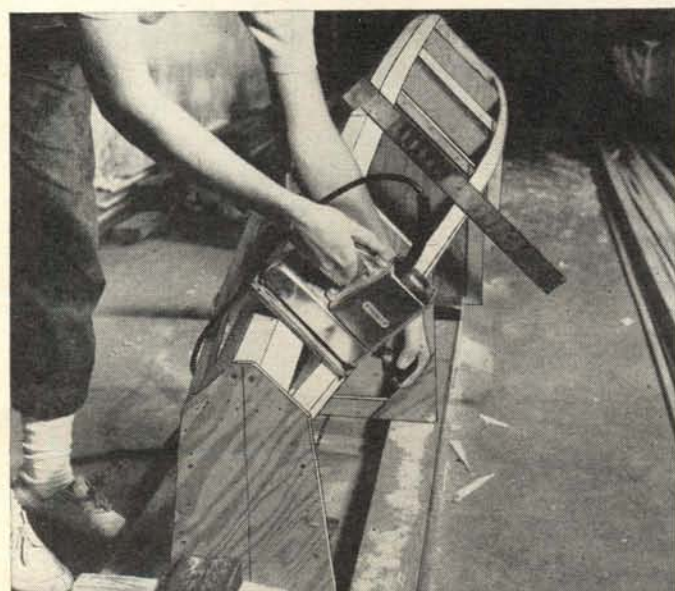


FIG. 16. Flat face of orbital sander is used to assure alignment of keel and chine bevels. When bevels are aligned exactly, hull planking will fit solidly, full surface will be glued tightly.



FIG. 17. Removal of considerable material when fairing chine and keel at bow requires use of plane first, followed by wood rasp. Sander is used for final finish of fairing operation at this point.

stringer to the bulkheads, drill pilot holes through it at the locations of the frames to prevent splitting it. After the glue on the planking and sheer stringers is dry, the boat can be removed from the strongback. Now is a good time to drill $\frac{1}{2}$ -in. lim-

ber holes at the bottom of each frame to permit bilge water to flow freely from bow to stern. A drain plug is located at the bottoms of the transoms of the main and float hulls so that bilge water may be drained from them when the boat is beached. Two

FIG. 18 DAGGERBOARD CASE

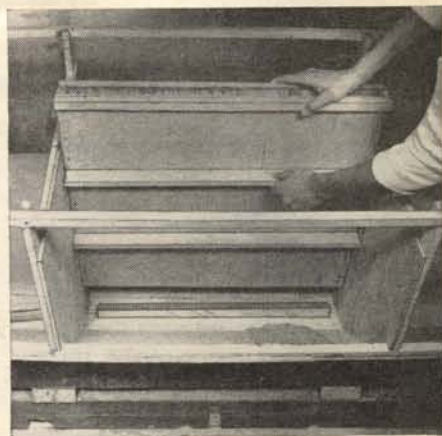
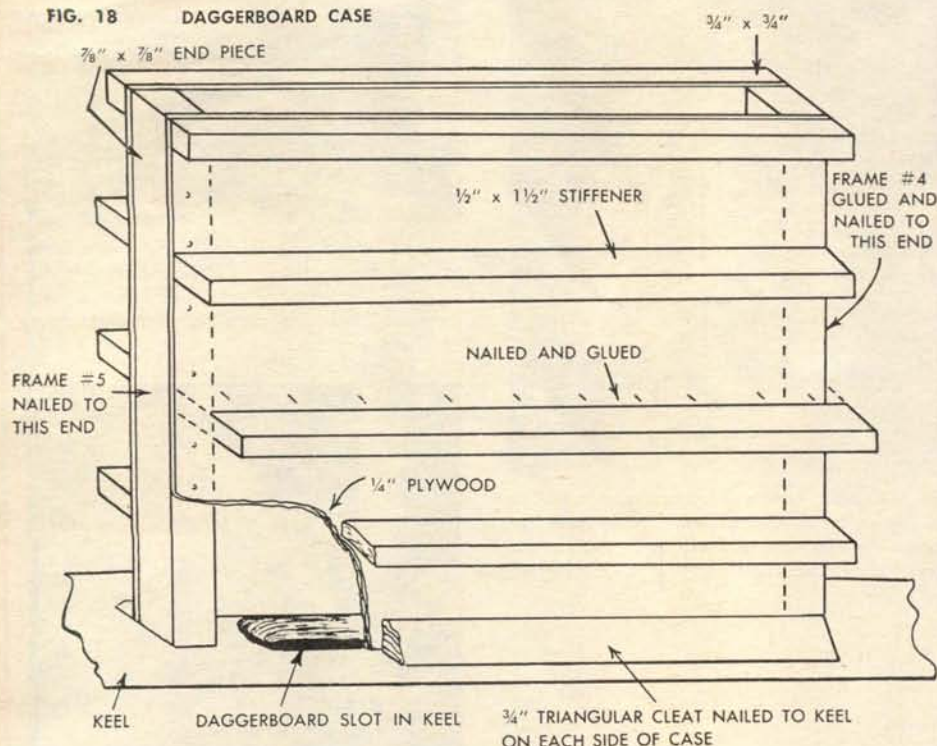


FIG. 22. Ends of daggerboard case are wiped with glue and it is fitted in place over gauge block fitted in keel slot.



FIG. 23. Edges of plywood planking are trimmed flush with keel and chine with fast-cutting electric jig saw.

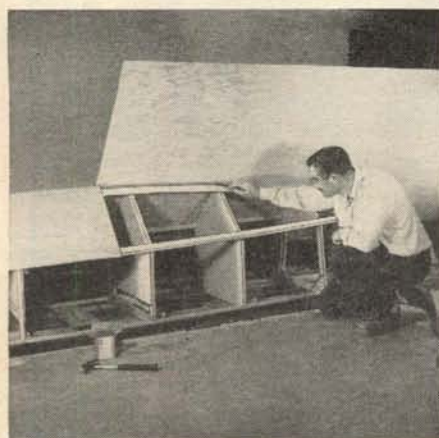
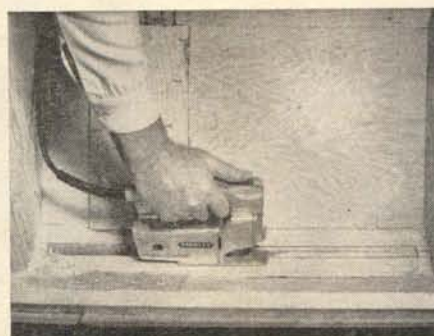


FIG. 19. Plywood planking for bottom first is tacked or clamped in place, marked along keel and chine with $\frac{1}{2}$ -in. trim allowance.



FIG. 20. This photo shows bottom planking glued and nailed in place, but before trimming it along the edges of the keel.

FIG. 21. Slot for daggerboard is cut in keel before daggerboard case is installed. Electric jig saw again makes this simple job.



holes are required in bulkheads 4 and 5 so the water will drain around the daggerboard case.

Although the Frolic can be built completely with hand tools, you will save much time and labor—both important if you want to get the boat into the water as soon as possible—by using power tools. A quality jig saw, such as the Stanley used in the construction of our boat, does in minutes what would take hours with a handsaw. For maximum strength the hull planking must fit flush against the keel, frames and chines. This makes sanding an absolute necessity. Any good orbital sander, such as the Stanley shown being used, polishes off the high spots and assures an accurate fit between planking and hull members. Do not countersink nail heads, as this will break the outer laminations of the plywood and produce potential leaks that will give trouble later.

(Part II of the article describing construction of *Frolic* will appear in the next issue of *WORKBENCH*.)



IT IS HANDY to have an interested helper when removing the spark plugs for cleaning and re-gapping. And he can learn about the intricacies of an outboard motor.



KEEP A PAN or stack of papers under the motor when draining and refilling the gear box on the drive shaft. Force oil in the bottom hole until it comes out top.

Spring Tonic for Outboards

PREPARING AN OUTBOARD motor for spring actually should have started in the fall when the motor is laid up for the winter. The motor should have been cleaned, stored upright and all external parts wiped with light oil to prevent moisture damage. Assuming that these things have been done, a spring tonic for your outboard motor includes checking the ignition system, lubricating the drive shaft and lower gears, inspecting the propeller and cleaning the motor. First, remove the spark plugs and clean and regap them according to the manufacturer's specifications. If the plugs are worn, it will pay you to replace them. Before replacing the plugs, squirt oil into the spark-plug openings and pull the motor over several times to distribute the lubricant. Next, check the magneto points. They should be cleaned and properly

spaced. Place the motor upright, remove the grease plugs and drain completely. Pour oil into the bottom hole until it runs out the top. Finally, inspect the propeller, have it checked if it appears bent or damaged. Even a slight misalignment of the blades will effect its efficiency. It is not always possible to determine by looking at a propeller to determine that it is out of line; a gauge, such as used by an outboard serviceman, is the only accurate way. If you have struck an underwater obstruction during the boating season, but did not find visible damage to either shaft or propeller, it still is a good idea to have the propeller checked. While you are at the shop, pick up a couple of spare shear pins for your boat toolbox. Also, check the box for a full supply of tools to be sure you can handle emergency repairs. $\Delta \Delta$



THE JUNIOR BOATMAN can help Dad by washing away dirt and grime accumulated over the winter. Ordinary household detergent is ideal.



IF THE PROPELLER appears damaged or bent have an outboard serviceman check it. Even a slightly bent blade reduces the motor efficiency.

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Chuck and Key
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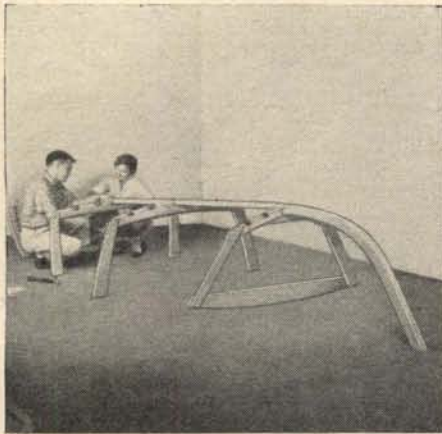
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BOAT KITS

POWER BOATS your preference? If you want to build one the quickest, least expensive way, then kit boats are the answer. Kits are complete with all parts; detailed instructions assure even an amateur that his finished job will be beautiful and seaworthy. Both wood-framed and molded fiberglass boats are available, shipped to you from the factory ready for assembly. $\Delta \Delta$



First step in building wooden-hulled kit boat is to assemble the frame members as shown.



Only hand drill, screw driver and C-clamps are needed to install planking on this kit boat.



Full-length bottom planking is easily formed over framework without seaming or soaking.



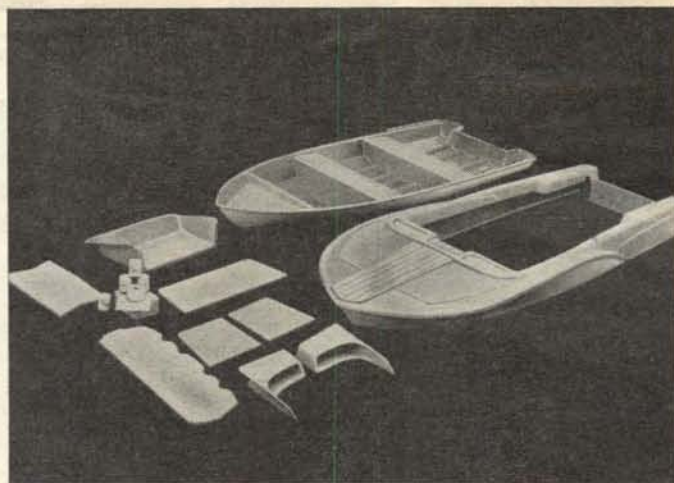
All parts are fully machined for absolute precision fit, and are plainly marked to correspond with detailed step-by-step assembly instructions that are included in the boat kit.



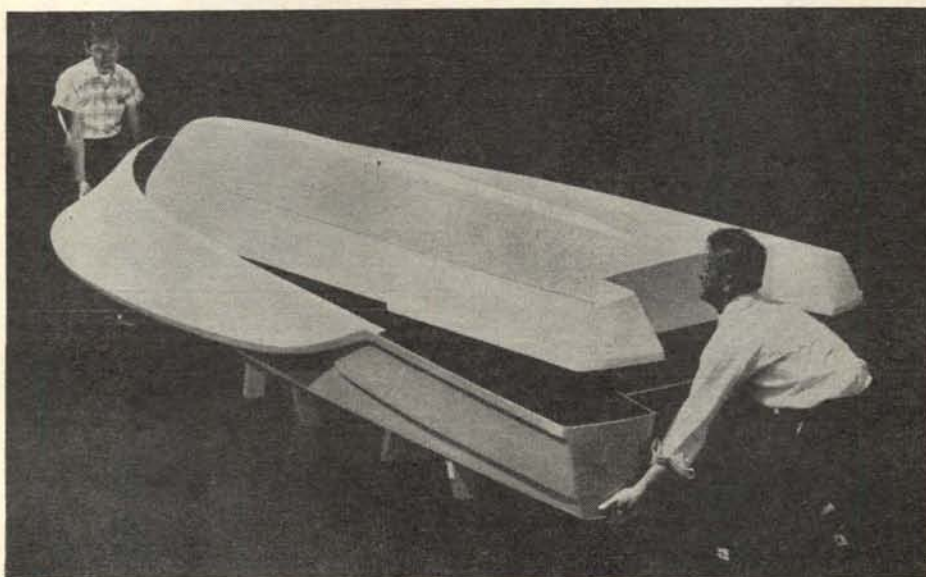
Nearing the last stages of construction, your kit no longer is a collection of parts but is beginning to take on the definite shape of a boat. You know you will soon be out on the lake or river.



The boat is complete, the paint and varnish have been applied and now you add the finishing touches to give your craft that professional look. Time now to tune up that outboard motor and clean up the trailer.



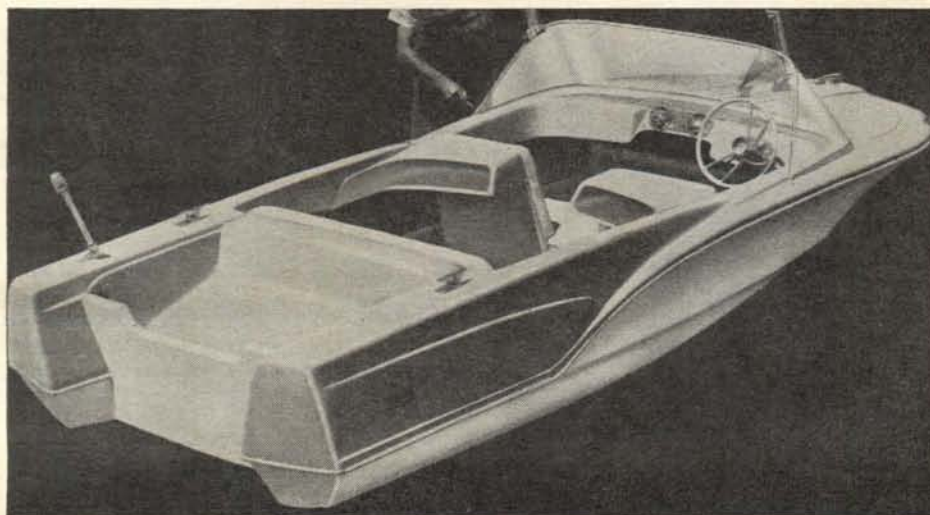
Molded-fiberglass boat kit has only a few parts, can be assembled in a matter of hours. Various parts are joined together with strips of fiberglass cloth and resin that are included in the kit.



INTERLOCKING EDGES of the molded units fit together accurately, no fitting is required. You will need a friend to help you slip these large sections together. Despite their size, the boat sections are light and easy to lift and handle.



APPLYING THE STRIPS of fiberglass and painting them with resin seals the joints between sections of the boat, making it absolutely watertight. Stainless-steel fasteners also are used in the assembly of sections.



Installation of accessories completes assembly of fiberglass boat. No painting is required, as color is molded right into the fiberglass, although the fiberglass can be painted.

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Kit Craft For Youngsters

RECOMMENDED AS an ideal project for boys from 10 to 16 is a 3-point hydroplane kit that consists of just 11 parts. With all parts finished, the hydro can be assembled in about an hour. Also available is a kit of unfinished parts at a lower price. The hydro will attain speeds up to 35 m.p.h. with a 5 to 10 h.p. outboard motor. For young sailors, there is a sailing dinghy in kit form, complete with hardware and sail. It is 8 ft. long, has a beam of 4 ft. and is 16 in. deep. The sail area is 30 sq. ft.

If Dad would like to teach his son the facts of boat building he can purchase a complete set of full-sized templates with instructions for the hydroplane, and construct it with his own materials.

Catalog is available from: Taft Marine Woodcraft, 636 39th Ave. N.E., Minneapolis 21, Minn.

For the youngster who prefers the quiet surge of wind power, this sailing dinghy is available in an easily assembled kit.



IN THE NEXT ISSUE . . .

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Kit-Built Speaker Enclosures and Component Cabinets
Kit-Built Electronic Organs
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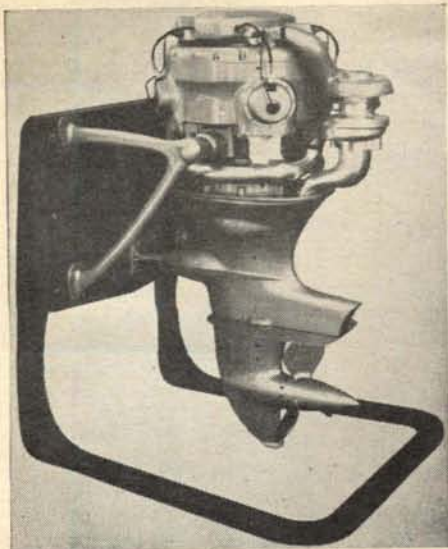
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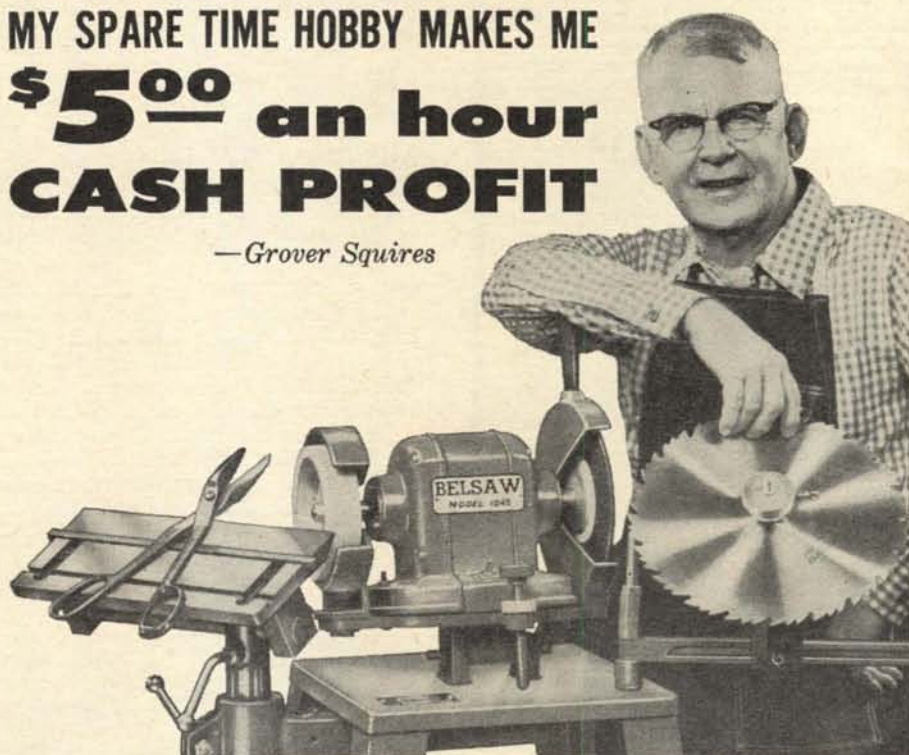


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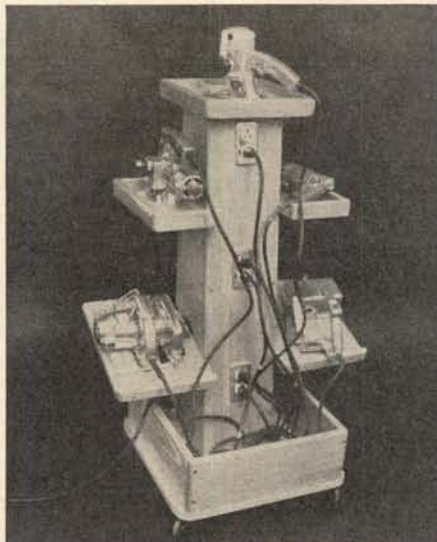
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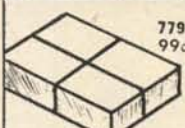
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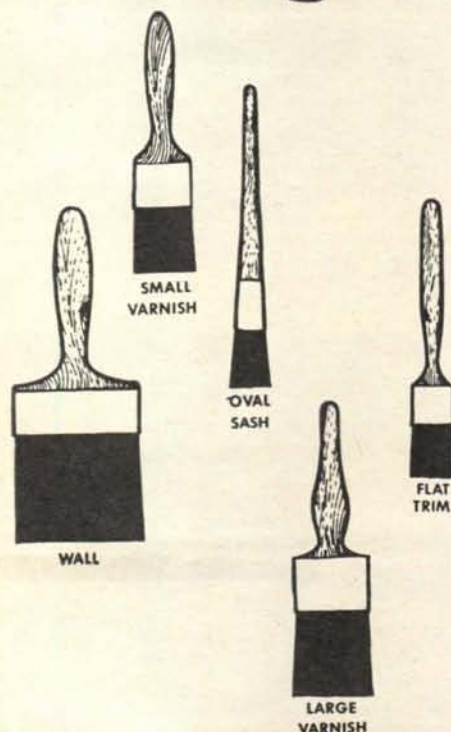


Stroking a brush edgewise on a narrow surface ruins it. Instead, use a smaller brush, or an old one that has been cut down to the right size.

Longer Life for Paintbrushes

EDWARD BENTLEY

Photos courtesy Pittsburgh Plate Glass Co.



Every home craftsman should have a selection of brushes such as this, which will cover almost every need around the home.



New brushes are soaked several hours in linseed oil, then smooth stick is used to press out the oil starting at ferrule and working to tip.

TOO OFTEN a homeowner buys top-quality paintbrushes, uses them for one or two jobs, then has to discard them because they are unusable. Good paintbrushes will give years of service, if taken care of properly.

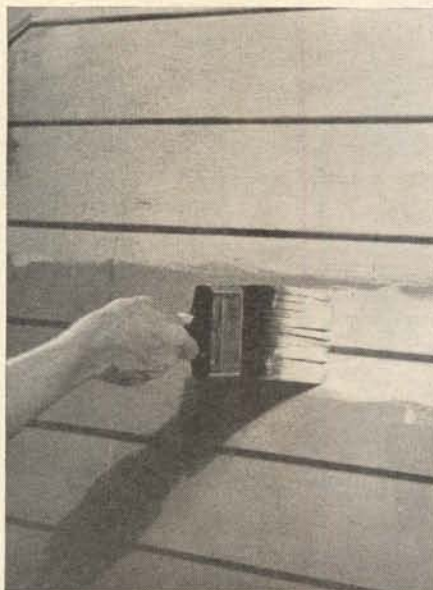
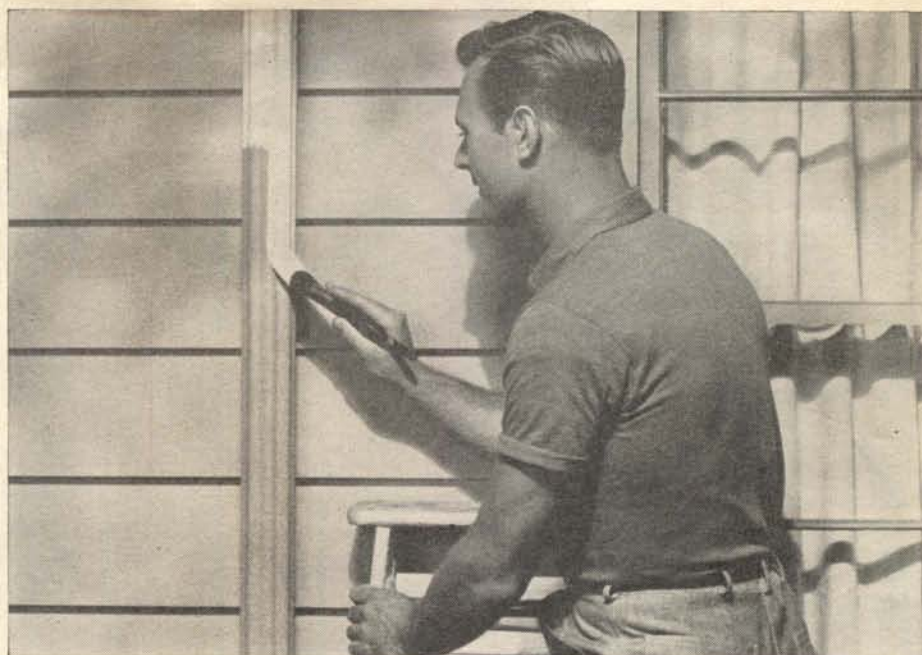
Care of a paintbrush starts **before** it is used, and is dependent on **how** it is used. The manner in which a brush is cleaned and *stored* can add years to its useful life, or ruin it completely in a matter of a few days. In this article we are discussing brushes made with natural bristles. However, much of the information given in the drawings and photographs on these pages also applies to brushes that have bristles of synthetic materials. Any differences in the care of the latter brushes will be described on the brush wrapper.

Look for your problem, or problems, in the photos and drawings, then check the captions for the solutions in your particular case. △ △

Do not straddle pipes or round work. Paint around cylinder, then use light strokes lengthwise to smooth out any marks of brush.



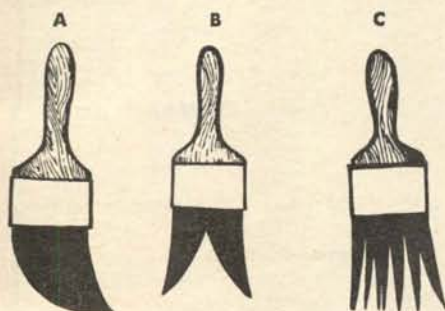
Remove loose bristles from a new brush by snapping it sharply across your extended fingers or palm of hand as indicated.



When brush is dipped properly so only half bristle lengths are saturated, excess pressure avoided, ferrule stays clean.

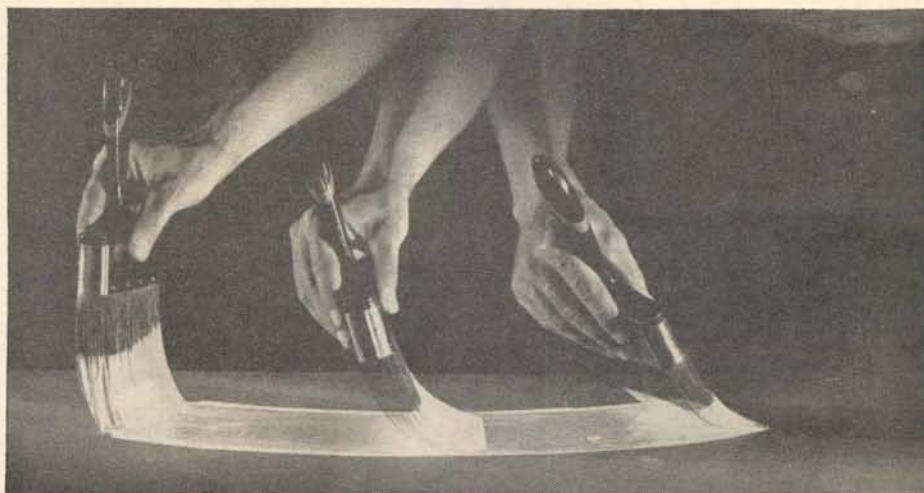


Small brush is essential for painting narrow openings, corners and narrow edges such as this window-sash crossmember.



Brush A was ruined by being jabbed in corners, B was split by painting pipes improperly, C was stroked edgewise too often.

Paintbrush should be held between thumb and forefinger, ferrule supported by fingers. Bristles should not be flexed excessively.





Dipping brush into paint only half length of bristles, pressing out excess, will permit painting ceiling without drippings running down handle.



Apply paint with moderate pressure on the brush. Excess pressure abuses bristles, loosens them in ferrule, ruins brush.



It is especially important to handle brush correctly on rough surfaces, such as concrete block that abrade and break bristles.



Use solvent recommended by paint manufacturer, work it into heel to remove all paint. Suspend brush in solvent so bristles hang free. Cleaned and stored properly, brushes last for years.

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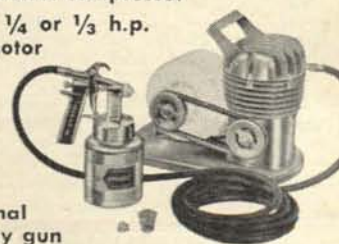
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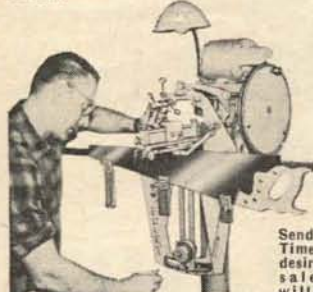
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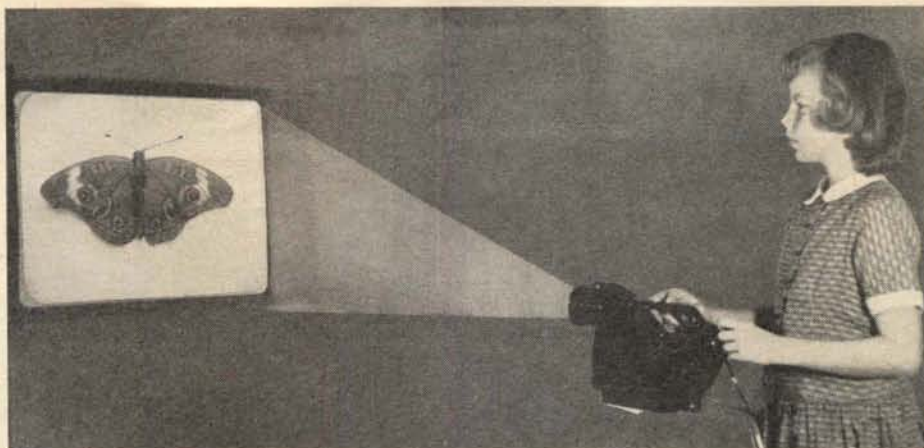
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Modern Magic Lantern

TED CHARLES

In the model shown here the unit is placed over the object to be projected, moved slightly to center the image on the screen, then focused by moving the sliding lens tube. The farther the projector is moved from the screen, the larger the image will be. Use of a standard 60-watt bulb is suggested, but we did find that using a 75-watt photo-enlarger bulb gave a brighter image. Available from Edmund Scientific Co., 101 E. Gloucester Pike, Barrington, N. J. △ △

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How To Paint Aluminum

GRANT T. FACER,
Kaiser Aluminum and Chemicals Sales, Inc.

"YOU CAN'T paint that, it's aluminum," often is heard among do-it-yourself painters. The fact is, you can paint aluminum, and the paint will last as long as on almost any surface. Successful painting does require following three rules: Clean the metal

thoroughly, Fig. 1, Prime it, Fig. 2 and use the proper paint, Fig. 3. Warm water and detergent, water and vinegar or a solvent such as turpentine or carbon-tet' are good for cleaning natural aluminum. Zinc chromate, or white paint containing

over 10 per cent zinc chromate are the best primers for natural aluminum. Pre-treated aluminum—anodized, Alodine, Bonderite, etc., such as Kaiser Green Diamond-Rib, needs no prime. Any quality paint, except those with a lead base, can be used on aluminum over prime. △ △



FIG. 1. First step is to clean metal with vinegar and water, detergent and water, turpentine or carbon-tet'. Any of these will do the job.



FIG. 2. Prime the natural aluminum with white primer paint containing over 10 per cent zinc chromate. This is only proper primer.



FIG. 3. Use any paint for finish coat except one containing lead. Use as many coats as required for weathering or wear where located.



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T. W. (Ted) BENNETT
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Here you see T. W. (Ted) Bennett at his absorbing hobby of gunsmithing in one of his two workshops (wood and metal) in Wayzata, Minn.

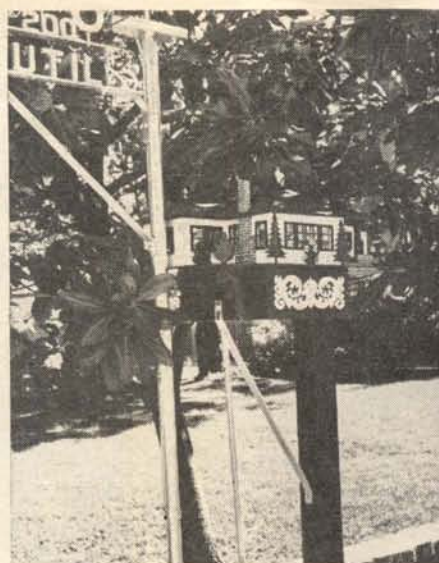
He is another of thousands of hobbyists and craftsmen who find the *Magni-Focuser* — 3 D binocular magnifier a great aid in speeding up work and assuring greater accuracy.

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"Basement" of this dollhouse is the mailbox. It is adjacent to outdoor light that illuminates homeowner's name and street address.

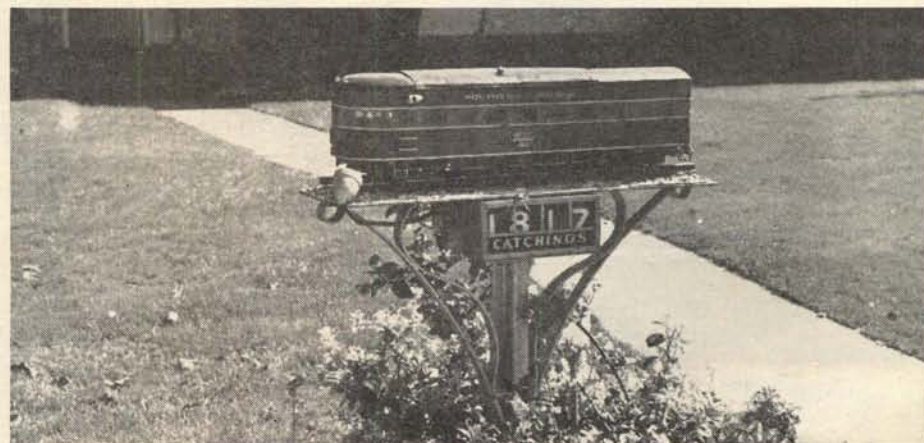


Cool stove was cleaned and painted, set in tiled concrete block. Stove pipe adds realism, keeps out water. "Mail" is painted on top.

Mailboxes With Personality

TOM RILEY

MANY SUBURBANITES, as well as farmers and ranchers, find today that they are required to have a mailbox on a post down at the street because mail is delivered by truck or bicycle. Taking advantage of the fact that the Post Office Department does not insist on the stereotyped metal container available at hardware stores, homeowners have designed mailboxes that are unique and individual. Shown here are a few of the results of original thinking on the matter of mail containers. One or more may give you an idea for a mailbox at your home. For truck or bicycle delivery, the street-side mailbox must be between 3½ and 4 ft. above the ground. It must protect the mail from the weather, be of a decent size and something that the mailman can recognize as a mailbox. Depending on the local delivery system, the box may need only your street address, or your name, or it may need name, rural-route number, etc. Check on these matters with your mailman, or the superintendent of your local post office before dreaming up a



Scale model of Southern Pacific streamliner rests on length of track, is lighted inside at night. Section of top lifts up for the mail. Miniature floodlight at left illuminates outside of the train.

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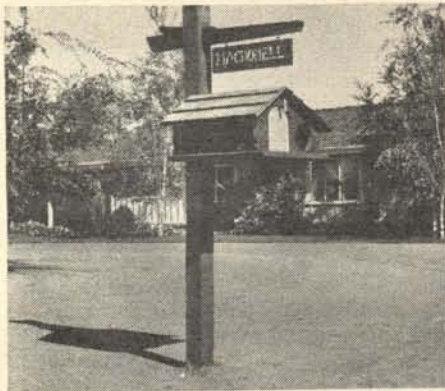
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50 « WORKBENCH



Inconspicuous mailbox was formed by leaving large opening in masonry when fieldstone column was built. Cast-aluminum door, such as used for chimney clean-out, is fitted over opening.



Chain links are welded together to form column for house-shape box. Roof lifts up for insertion of the mail.



Standard metal mailbox is enclosed in this house-shape creation. Opening at right of box is for a newspaper.

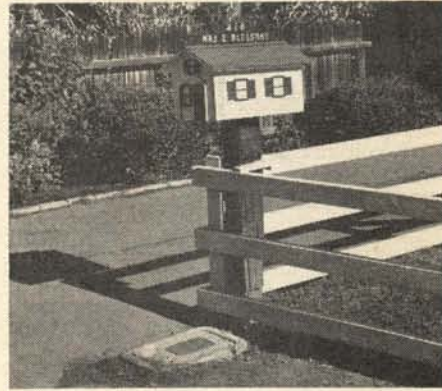
mail container of your own design. It must meet local post office regulations to be acceptable.

A mailbox can reflect your personality, show your hobby or your job, or even be combined with your street address. △ △

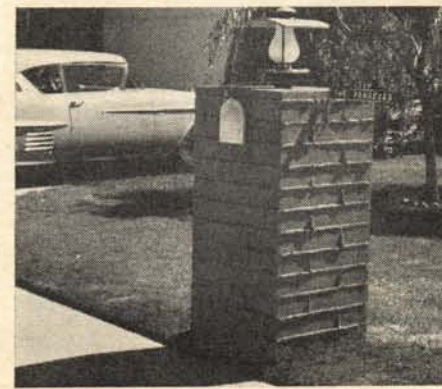
Enclosed in brick column, standard metal mailbox is positioned so homeowner can reach it from car window.



Shaped from sheet metal, this mailbox is combined with steel-angle column that supports outdoor lamp above it.



Duplicate of the house in front of which it stands, this mailbox also has owner's name and street address.



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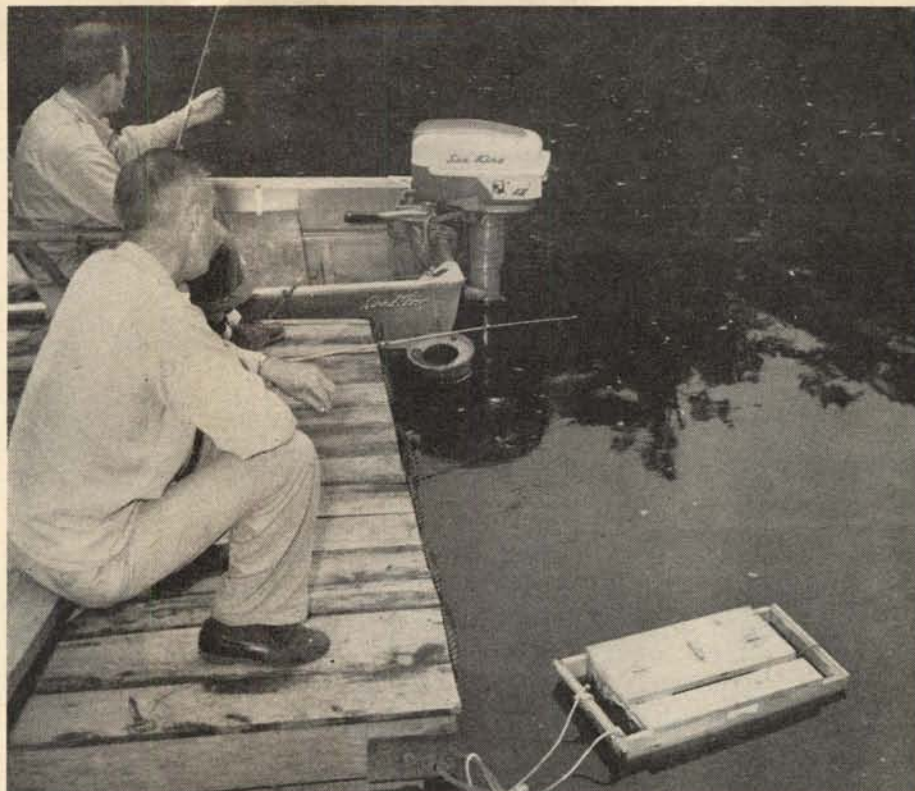


FIG. 1. Live box is tied with one end against current, so water flows through holes in ends, assuring constant change of water in box.

Our Floating Live Box

JEAN LYON

YOUR CATCH can be kept fresh and
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and inexpensive to build. It is con-
structed from an ordinary apple box,
in each end of which are drilled six
1-in. holes, Fig. 3. The long sides next
to the top of the box are reinforced

with lengths of 1 x 2, then chicken
wire or hardware cloth is stapled to
the box, Fig. 4. What had been the



FIG. 2. Fish can be kept alive and fresh until
time for them to be cleaned in this live box.

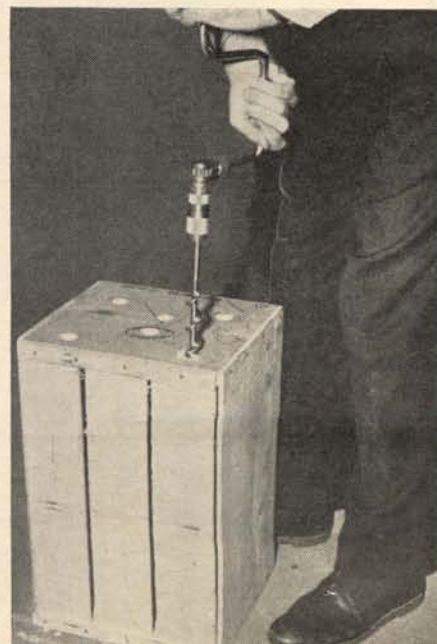


FIG. 3. First step in construction is to drill six
1-in. ventilation holes in ends of apple box.

bottom of the box is discarded and lengths of 1 x 4 are nailed to the long sides of the box as indicated in Fig. 5 and allowed to extend 4 in. beyond each end. Scraps of molding—1 x 2s can be used—are nailed across the extensions to provide handles. A lid for the box is made of 1-in. stock, as in Fig. 5 and fitted with hinges and a barrel bolt. Note that there is a space between the two boards that are cleated together to form the lid. This assures ventilation through the top of the box. Positioning the bolt at the hinge side of the lid was necessary because of the lid design. The hinges can be located on the edge of the box also. $\Delta \Delta$



FIG. 4. Chicken wire or hardware cloth is stapled over top; frame can be used to cover wire edges.



FIG. 5. Top of live box is made of 1-in. lumber, fitted with hinges and barrel bolt.

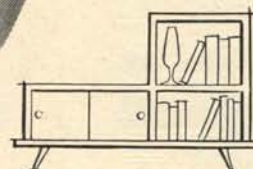


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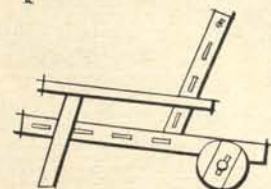
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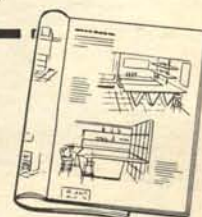
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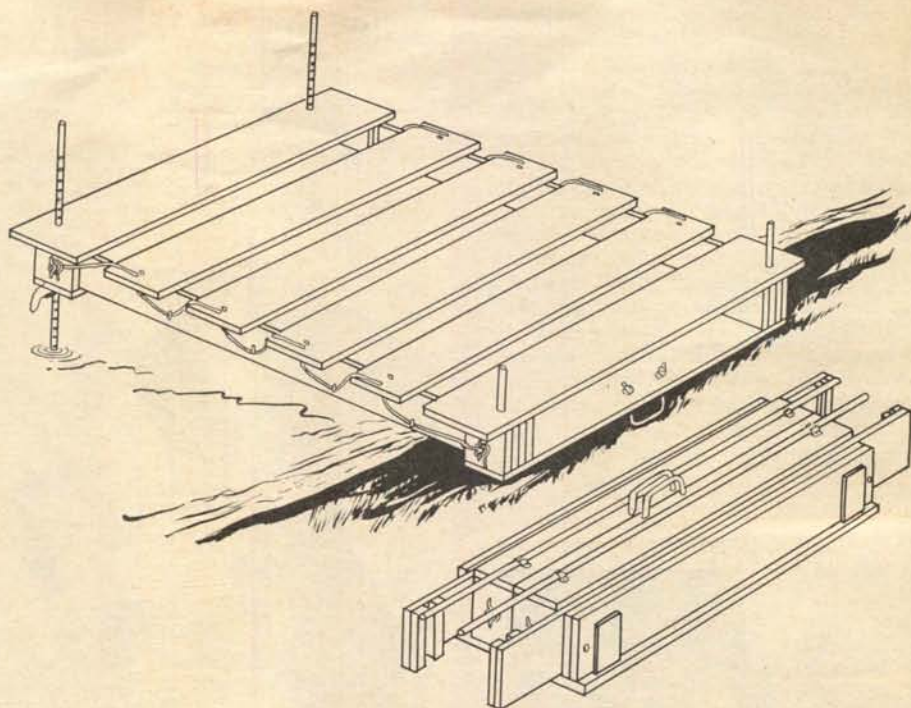
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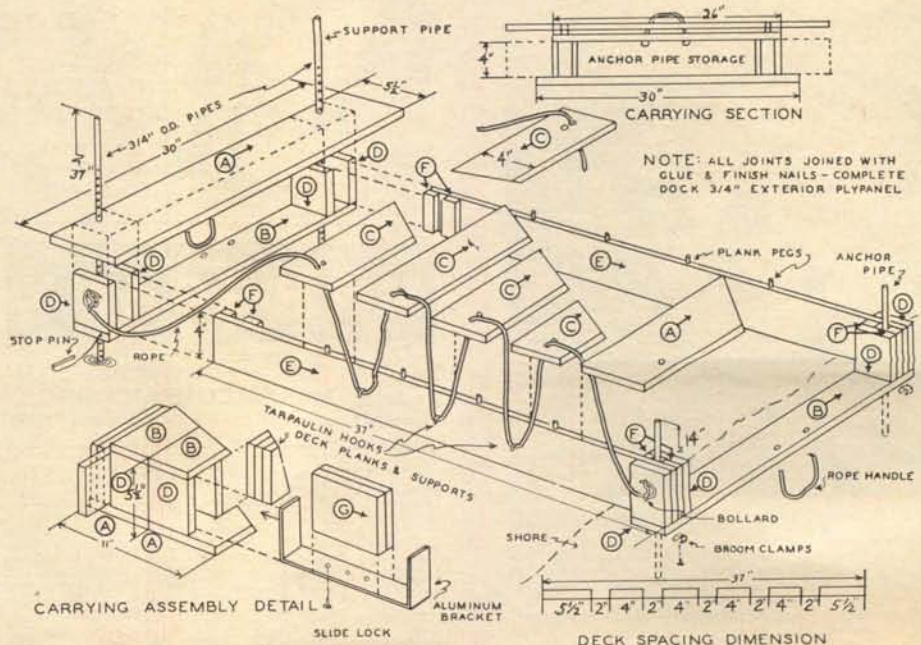
PORTABLE BOAT DOCK

M. H. SLUTZ

CARRIED in a car trunk, boat or camping trailer, this knockdown unit can be assembled in a short time when a light-duty dock is needed. Designed to give swimmers a place to dry off, or small boats a spot to tie up, the dock measures 30 x 37 in. when set up, and only 5½ x 11 x 37 in. when knocked down for carrying. Rope is used to lash down the deck planks, two short pieces of pipe anchor the

dock to the shore, while two longer lengths of pipe support it over the water at any desired height.

Begin construction by laying out and cutting duplicate pieces to construct the box-shaped end members of the dock. Space the compartment dividers, D, wide enough to receive the double thickness of the support rails, E, plus the pipe-space cleats, F. Next, cut the deck planks, C, and



the support rails, E. Glue and nail on the pipe-space cleats on each end of the rails, spacing them $\frac{3}{4}$ in. to receive the anchor and support pipes. (These pipes are standard $\frac{1}{2}$ -in. pipe, which has an outside diameter of approximately $\frac{3}{4}$ in.) Fit the rails into the assembled end members of the dock and drill $\frac{3}{4}$ -in. holes for the pipes, taking care to center them over the spaces formed by the cleats. Drop four pieces of pipe into the holes to lock the dock together, then space the deck planks along the rails and nail them temporarily in place. Now, drill $\frac{3}{8}$ -in. holes through the centers of the planks, located so they are centered in the top edges of the support rails. The holes are drilled 1 in. deep into the rails. Glue $\frac{3}{8}$ -in. dowels $1\frac{1}{4}$ in. long in the holes in the rails. Drill holes in each deck plank, flush with the outsides of the support rails for the lash ropes. Drive tarpaulin hooks into the rails centered between the plank dowels as shown. A small bollard, or cleat, is attached to both ends of each end member of the dock for securing the ends of the ropes. Two lengths of $\frac{1}{2}$ -in. pipe 14 in. long are cut for the shore end of the dock, two lengths are cut 37 in. long for the water end. In the latter two pipes drill $\frac{1}{8}$ -in. holes 1 in. apart for the support pins that are cut from $\frac{3}{16}$ -in. steel rod. Two brackets shaped from $\frac{1}{8}$ x 1-in. aluminum flat are fitted with lock blocks, G, that are attached with screws. These sliding locks are fitted in the ends of the end members of the dock as indicated, and accommodate the deck planks. Spring (broom) clamps hold the long pipes, the shorter ones fit inside the carrying section.

PARTS LIST

- A Deck End Planks $5\frac{1}{2}$ " x 30"
- B End-Frame Bottoms 3" x 26"
- C Deck Planks 4" x 30"
- D Frame Dividers 3" x 4"
- E Support Rails 4" x 37"
- F Pipe Cleats, to fit
- G Lock Blocks 4" x 6"

△ △



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WORKBENCH

RESEARCH DEPARTMENT

Each issue in this column we will choose questions on home and shop subjects from letters sent to us. Only those questions which have wide ap-

peal will be answered here. Questions on specialized subjects will be answered by individual letter from the Research Editor's desk.

Research Editor:

Paint peels from my metal shower stall almost as fast as I can apply it. It cracks and peels back to the bare metal. I've tried several different paints and enamels with the same result, although some stayed on longer than others. The stall is in a corner of my basement recreation room and it was installed according to instructions with a vent to the outside near the top of the stall. The whole thing's a mess and I've thought several times of taking off all the paint. Do you have other suggestions?—C. C., Mass.

Dear Mr. C. C.:

We'd be inclined to agree with you on leaving the paint off the walls entirely. A shower stall in a basement is rather a swampy place at best, and especially during the summer months when the humidity of the air in the basement room is almost invariably high for long periods of time. You do not say what kind of metal was used in the stall. If, for example it is a late type made from aluminum, then we'd say remove the paint. But if the walls are of galvanized sheet steel, then paint or enamel, properly applied, does offer some protection against corrosion and adds to appearance. But—before applying the paints and enamels you have used—did you apply a metal primer? If not, then there's the reason that paints and enamels won't stay on the metal. All metal surfaces and especially metals exposed to the conditions present in a shower stall, require a primer before application of any top finishing coats. You'll have to remove all traces of the old paint with a remover, clean the walls thoroughly and apply a metal primer when they are dry. This should be done in the winter when there is heat in the basement and the metal is thoroughly dry. Then follow with one or two finishing coats of a quality gloss enamel.

Dear Research Editor:

Last winter I did not get all the leaves raked off my lawn. Some got covered with snow before I got them up. They were mostly elm leaves but there were some maple and some oak leaves. The covering on those areas where the leaves remained was not heavy as I had previously raked the areas and the leaves that did remain were the last to fall. Now that the snow is gone I've raked up those remaining. Under the leaves the grass appears to be rather gray and colorless and I'm wondering if it's going to come through. Have you had any experience with this kind of thing?—S. H., Mo.

Dear Mr. S. H.:

If the plants have been covered over winter by overlapping leaves it is rather doubtful if they survived. On the other hand if the leaf covering was scattered the chances are good that the plants will revive. We think it would be a good idea to start a rather heavy feeding schedule immediately. Also, we think it would be wise to go over the entire lawn with a special cultivator, or aerator. You can obtain these lawn cultivators, or aerators, as a separate unit which is weighted with small stones or bricks to give the right amount of penetration, or you can purchase a unit specially designed for attachment to your lawn roller. Go over the lawn with this unit before spreading the fertilizer and grass seed, but if you use this type of aerator which is attached to a roller, be careful not to weight the roller too heavily so that it tends to pack wet soil. The purpose of the aerator is to loosen the soil around the grass roots and permit moisture and fertilizer to penetrate. It's a fairly common practice to mix plant food and grass seed in the spreader and apply both at the same time. If you are careful to mix the seed uniformly with the plant food you will get a uniform distribution

of both. Of course, mixing grass seed with the fertilizer may tend to cut down the amount of fertilizer spread for a given setting on the spreader, but as a rule the variation is negligible and actually will make little difference if you adopt a regular feeding schedule. It's wise to go over the lawn lightly with the aerator after seeding and feeding as described. This will loosen the top soil and help to cover the seed. It's a good idea to apply grass seed once again the same season, in the latter week of August but not later than the first or second week of September.

Dear Research Editor:

My home is new and in one basement wall, on the long side, there is a narrow area about 6 ft. long and running diagonally from near the floor to a point about 2 ft. from the top of the wall along which the gravel and small pebbles in the concrete mixture show clearly. This does not appear anywhere else on the inside surface of the walls. Last fall during several rather heavy rains, water came in through this space I refer to. Not in any great amount, but still, enough to wet the floor over much of the basement before it ran out the drains. What is this defect and how can it be fixed?—N. D., Tex.

Dear Mr. N. D.:

The defect you describe is known as a "cold" joint and is caused generally by fresh concrete being poured over a previous pouring that was partially set. That is, there was a delay between pourings and the new did not bond to the older pouring. There are, of course, other causes of this phenomenon, but that described is perhaps the most common. Another frequent cause is pouring a stiff mix of concrete over a previous batch that has partially set. It is not always the fault of your contractor directly. It may have been caused by an accident, such as an unlooked for breakdown of equipment, causing a delay in pouring that section of the wall, or some other cause which could result in a delay between pourings. Still, he might yet consent to repair the defect, if you will call it to his attention. Inasmuch as the water comes through it can only mean that the wall is open on both sides, that is, the void or voids extend all the way through the wall and permit the entrance of water. This being so, it probably will be necessary to dig down to the lower end of the opening and either cement plaster the area, or coat with a heavy application of hot asphalt. Several applications may be necessary to assure an effective seal. This done, the inside of the wall should be cement-plastered over the defective area. This should effect a permanent cure.



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Research Dept.:

We have a clothes closet which extends into what was once a hallway between two bedrooms. The hallway has been walled off and the part which was formerly the bedroom has been included in the living room, making the living room L-shaped. We want to divide the living room, take out the wall that encloses the hallway and make the space into a bedroom as it was originally. If we reopen the hallway the remaining closet space will be about 8½ ft. long and only about 30" wide. What to do with this space is our problem. The bedroom will be small, just space for a double bed. The closet door cannot swing into the room. Have you any suggestions what to do?—L. T. Nebr.

Dear Mr. L. T.:

If we can visualize the arrangement correctly from your brief description, the solution should be quite simple. However, you do not say where the bathroom is located, so we'll assume it is between two bedrooms with the problem closet space built along one side. This was a fairly common arrangement of bedrooms in homes built some years ago. If we've guessed right on the arrangement then it would seem that the obvious thing to do is allow about 2 ft. on one end of the closet space—the hallway end—for a linen closet. This will reduce the length of the clothes closet space, of course, but by hanging passing doors (sometimes referred to as slide-past doors) you can reach both ends of the clothes closet easily. The space above the passing doors can be utilized for dead storage by opening the wall, framing the opening and fitting bifold lower doors. These will give access to the whole space without having to reach into dark corners. Of course, the clothes closet space should be lighted. Don't depend on the room light. The linen closet is a worthwhile convenience, even though you already have another. If the hallway to the new bedroom is average width you will have room to swing a narrow door into it without interference. The wall dividing the original closet space into clothes closet and linen closet can be faced with plywood or hardboard on each side of the studs. This will save you the cost of plastering, which is a rather expensive item.

Dear Research Editor:

I have a forced-air heating system which has been in service 10 years. This last winter the unit became quite noisy while the fan was operating. Apparently the noise came from the fan itself but I notice that the sides of the furnace, which are of sheet metal, vibrate when the fan is running. This seems to increase in intensity during the operating cycle. I have examined the furnace inside and out and there seems to be nothing loose. All screws are tight. The motor

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KESSLER CORPORATION, Dept. D-193, Fremont, Ohio

is rubber mounted and the mountings still appear to be in good condition. Have you any idea what could be wrong?—S. H., Ohio.

Dear Mr. S. H.:

Have the fan and the cold and warm-air ducts been cleaned lately, and do you change the filters regularly? Not being able to examine your furnace firsthand, it's rather difficult for us to say positively what might be wrong. The fan is undoubtedly of the squirrel cage, or centrifugal, type and in time these fans collect lint on the leading edges of the blades. This causes the fan to run less smoothly and increases the turbulence of the air in the plenum. We think it quite likely that if you open the cold-air plenum and pull the fan out you will find the leading edges of the blades quite heavily coated with lint. Clean the blades thoroughly and you should note a marked improvement in smoothness of operation and greatly increased efficiency. But that isn't all of the causes of noise. Clogged filters, partially clogged cold-air ducts and closed registers can set up vibrations throughout the entire system. We suggest that you run a careful check of the system. Look for accumulations of lint, bits of cloth, paper, etc., which may be drawn into the cold-air ducts and lodge at some point. Such an accumulation can act as a baffle in the duct and create a partial vacuum in the cold-air plenum. This can cause the sheet-metal housing to vibrate quite noticeably and the resulting noise will be transmitted throughout the system. One other item to check if your furnace is of the horizontal type with a heat exchanger: In this type the fan housing outlet, or port, usually enters an opening in a sheet-metal wall immediately back of the heat exchanger. This opening usually is edged with asbestos stapled to the metal. If the asbestos edging is worn through, permitting a metal-to-metal contact between the fan port and the wall, this condition also could produce noise. And while you're at it make sure by actual testing, that the fan is not loose on its shaft and also that neither the motor pulley nor the fan pulley are loose on the shafting. A loose pulley or a loose fan also could result in noisy operation. Keep the filters clean and replace them at least once and better, twice, during the average heating season. Lint which accumulates on the top surface of the filters can be removed with a vacuum cleaner. However, the cleaner will not remove the fine dust and lint which collects within the filter. That's why it's necessary to replace filters regularly.

△ △

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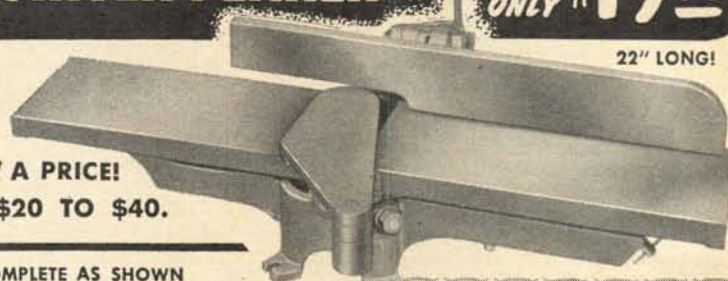
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YOUNG GARDENERS . . . WIN

AN IMPORTANT ANNOUNCEMENT TO JUNIOR GARDENERS . . .

YOUNG AMERICA GARDENS contest for 1960

. . . a project of the Flower and Garden Foundation

FLOWER AND GARDEN FOUNDATION of Kansas City, Kansas, is announcing this month the first of a series of nationwide annual contests for the young gardeners of America. Thousands of dollars in valuable prizes, including eleven college scholarships, will be at stake in this year's competition.

Children of school age up through the third year of college are eligible to enter.

The purpose of the contest, as outlined by the Foundation, is to promote and encourage an interest in gardening among young people. A by-product, it is hoped, will be the strengthening of the ranks of gardeners across the country by the influx of enthusiastic youngsters who will continue their interest in plants and growing things as they become older.

This is the first step in the Foundation's program to promote the improvement of horticultural methods, and the betterment of private and public gardens across America.

Any Type of Gardening Project Can Win

Particularly interesting to the young gardener is the fact that any type of gardening project will receive the same consideration for entry and prizes in the contest. It may be a project in general flower or vegetable gardening, patio or garden design, porch or planter box growing, house plants, specialization in one type of plant such as roses or irises, or lawn improvement. It may be some experiment to find a better growing method, a program in breeding or selecting, a system of trellising, watering, protecting, etc. In short, it may be any gardening project that strikes the fancy of the young person wishing to enter.

The only requirements are that the persons who enter must be in one of the age classes outlined in the official

rules and must have carried out the gardening project themselves.

Easy to Enter

To enter the contest the contestant first should send for an official entry blank by signing and mailing the coupon at the end of this article. With the official entry blank he will receive a free surprise gift from one of the co-sponsoring firms.

Next, the contestant should decide on what kind of gardening activity he wants to try. Then any time before September 1, 1960 he should write 500 words or less telling about this activity. He should just describe in his own words what he has done. The contestant then encloses a black and white photograph or snapshot showing some phase of the project, attaches the official entry blank which will be sent to him, and sends the completed entry to Flower and Garden Foundation.

Thousands of Valuable Prizes Given

To attract what it hopes will be the cream of the nation's young gardening talent to enter the contest, Flower and Garden Foundation has planned an impressive array of prizes. They will be awarded on a regional basis, with regions divided according to the map (page opposite).

The top prize in each region will be a \$100 scholarship for high school seniors or college freshmen, sophomores or juniors. No requirements will be made that the scholarship be used for study in botany or horticulture, but it is hoped that the student, nevertheless, will form a lasting interest in gardening. There are no restrictions as to the course of study or college selected except that it be an accredited institution. Over the country, eleven of these scholarships will be given to winners in the older age group, and will be sent to the winner's choice of college to apply on his tuition. Of course, this group will also share in the merchandise prizes.

In addition, the Foundation has received the enthusiastic support of many co-sponsoring firms, all business establishments dealing in plants or gardening products, who are offering hundreds of other merchandise prizes in addition to ribbons, for the winners. Here is a partial list of these prizes, which will also be awarded on a regional basis:

Clematis plants, rose bushes, peonies, hemerocallis, delphinium, gladiolus and tulip bulbs, fertilizer, mimosa trees,

What Is the Flower and Garden Foundation?

It is a non-profit organization established in 1959. Among its purposes and aims are these: to promote public interest in gardening, community improvement through horticulture, and to recognize efforts of individuals or institutions contributing to the improvement of horticultural products and processes.

Scholarships ... and Thousands of Other Prizes

Regional Division

The regional division of the contest greatly increases the opportunities to participate in the prizes. And because to some extent it groups together those who can grow certain kinds of plants or have certain kinds of gardening problems, it makes the competition more even in the three age groups.

The eleven regions will be New England, Middle Atlantic, Southeastern, West Central, North Central, Heart of America, East Central, Mid-South, Southwest, Mid-Mountain, and Far West. Entries will automatically be assigned to these regions according to addresses given on the entry blanks.

1. New England
2. Middle Atlantic
3. Southeast
4. East Central
5. Mid-South
6. North Central
7. Heart of America
8. Southwest
9. West Central
10. Mid-Mountain
11. Far West



SEPARATE PRIZES AWARDED FOR EACH REGION SHOWN ABOVE

Contest Rules

1. Contest is open to all young people residing in the continental United States in these age groups:
 - A. Age 5 to and including age 12.
 - B. Age 13 to high school junior (will be next fall).
 - C. High school senior and first three years college (will be next fall).
2. Entries will consist of a written paper or letter under 500 words in length describing a horticultural project which has been or is being carried on by the person submitting the entry. It should be accompanied by one black and white photograph illustrating some phase of the project. Size of the photograph is not important. Entry should be written on one side of the paper only, and no other subject or correspondence should be included.
3. All entries, including photographs, will be judged on the basis of interest, clearness of description, actual or potential success of the project, and neatness of the presentation.
4. Entries cannot be returned and become the property of Flower and Garden Foundation.
5. Each entry must be attached to an official entry blank, properly filled out. (Obtain entry blank by returning coupon below.)
6. Entries must be postmarked not later than midnight, September 1, 1960.
7. Winners will be notified by mail and names of top winners will be announced in the December, 1960, issue of *Flower and Garden Magazine*. Decisions of the judges will be final. In case of a tie, duplicate prizes will be awarded.
8. Participants incur no obligation by entering this contest.
9. The contest is closed to employees (and members of their families) of co-sponsoring organizations and their advertising agencies.
10. The same contestant may not make more than one entry.

Tips on Projects

What sort of gardening project could you write about? There is no end to the list of possibilities! Perhaps you are planning a special "salad garden." Then tell how you plan it and what you planted in it—and send a picture of it at its prime. Perhaps you are planning a "tub garden." Tell how you build it and plant it. Perhaps you are planning a tomato-growing project. Step-by-step you can tell the planting dates, varieties, fertilizing and watering—and don't forget the yield! Perhaps it is houseplants that interest you, and you wish to show how you give them a "summer vacation" outdoors. Tell your system, the plants you used, and how well it worked (the picture will show this too). Is it perennials from seed that fascinate you? Show how you plant and care for them, and the plants you have as a result. Do you have a porch box you wish to plant? Give the details of the soil you use, the plants you select, and how well the box succeeds. Perhaps you want to make a miniature garden. You will find plenty of details to relate about this one. Perhaps you want to rid your lawn of crab grass. Tell how you go about it, and what degree of success you have.

These are just examples, but show the kind of ideas that you might develop into a prize-winner in the YOUNG AMERICA GARDENS contest. Start planning your project right away!

holly, miscellaneous plants and shrubs, raspberry bushes and hundreds of gift certificates good for nursery stock of the winner's choice.

As Group Projects

The Flower and Garden Foundation is encouraging garden clubs, teachers, Boy and Girl Scout leaders, 4-H leaders and others working with children and young people to urge them to participate. It is not necessary that the gardening project be completed by the closing date of the contest, September 1, 1960. It should merely be well enough along so that the result can be seen. By offering tangible prizes for the summer's accomplishment, the Foundation hopes to bolster youthful enthusiasm into lasting plans for future gardening.

Co-Sponsoring Firms

The following nurseries have agreed to cooperate in the sponsorship of this contest by providing the merchandise prizes:

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Young America Gardens Contest, Flower and Garden Foundation

Department 102, Rosedale Station, Kansas City 3, Kansas

Please send me your official entry blank to be used later when I submit my entry to the "Young America Gardens" contest. Also send my free surprise gift.

I have checked the age group to which I belong. Name _____

☐ A. Age 5 through age 12

Street _____

☐ B. Age 13 to high school junior (will be next fall)

City _____ Zone _____

☐ C. High school senior and first three years college (will be next fall)

State _____



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EASY HANDWORK makes fast-selling useful articles. Sample free. Sunmade Company, Brockton 64, Massachusetts.

BUY WHOLESALERS: 100,000 Nationally Advertised Products. Appliances, Cameras, Sporting Goods, Housewares, Watches, Typewriters, Tools, Clothing, etc. Discounts to 60%. Buy-Rite, Box 258, Hawthorne 6, New Jersey.

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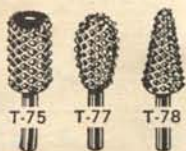
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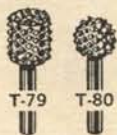
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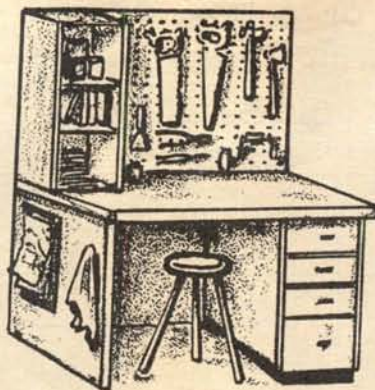
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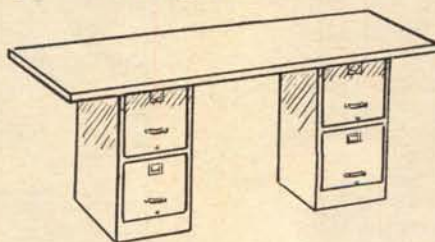


Polishing Flat Surfaces Accurately



In constructing projects that require flat surfaces, accuracy can be assured by using the table of a drill press as a standard. Fasten a piece of sandpaper to the table by means of tape at the edges. Then place the work on the sandpaper and move it around with firm even pressure. An example in which this method was used was the construction of a special back for a camera, where the four edges must fit with precision. Hugh Lineback, Stillwater, Okla.

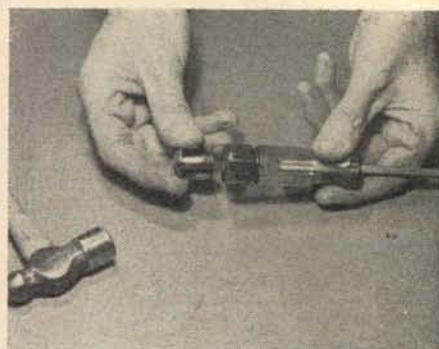
Space-Saving Home Office



Two 2-drawer file cabinets spanned by a flush door make an ideal home office. The door can be refinished to suit or covered with sheet plastic or other material. Width of the door used is determined by the dimension from front-to-back of the file cabinets. Diane Syme, St. Paul, Minn.

WORKBENCH SHOP TIPS

Adding "Sock" to a Screwdriver



A screwdriver can be made even more useful by modifying its handle so that it can be used as a hammer. Machine or file away the square portion of the shank under the head of a carriage bolt, cut through the bolt 1 in. from the head, and force the shank portion into a hole bored in the end of the screwdriver handle. The rounded bolt head becomes an effective hammer for reseating loosened siding nails, etc. Walter E. Burton, Akron, Ohio

Estimating Paint Left in Spray Cans



Scale consisting of half-round nailed to lumber scrap weighs fresh paint can against water in glass jar. Tape on jar indicates amount of water required to balance paint. As paint is used, reasonable estimate of amount remaining is determined by amount of water needed to balance the improvised scale. Bil Toman, Palatine, Ill.

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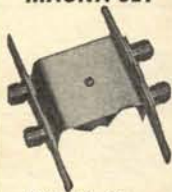
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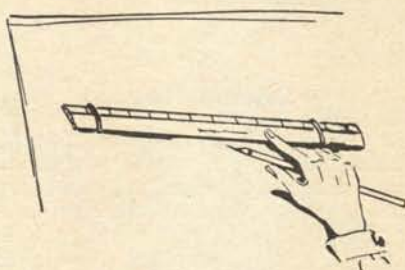
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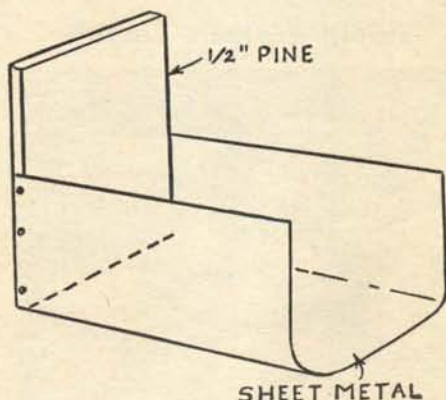
Stretched between two cup hooks or screw eyes driven into a workbench top, a screen-door spring can be brushed or spray-painted thoroughly. Keep it stretched until paint is dry. *J. A. Comstock, Wellsboro, Pa.*

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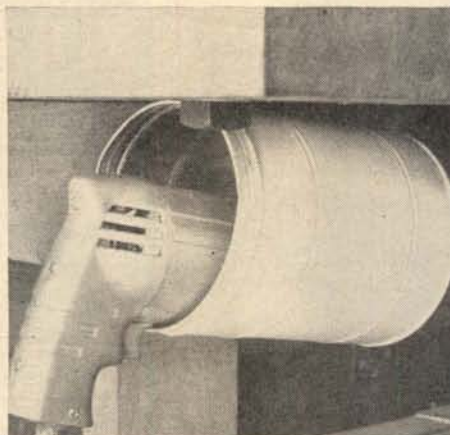
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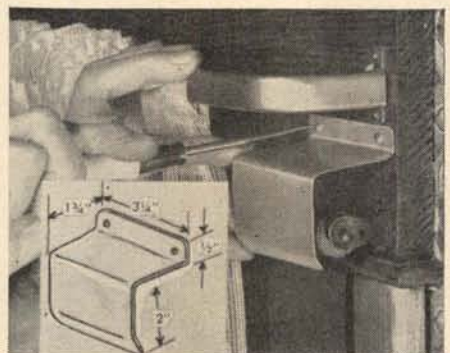
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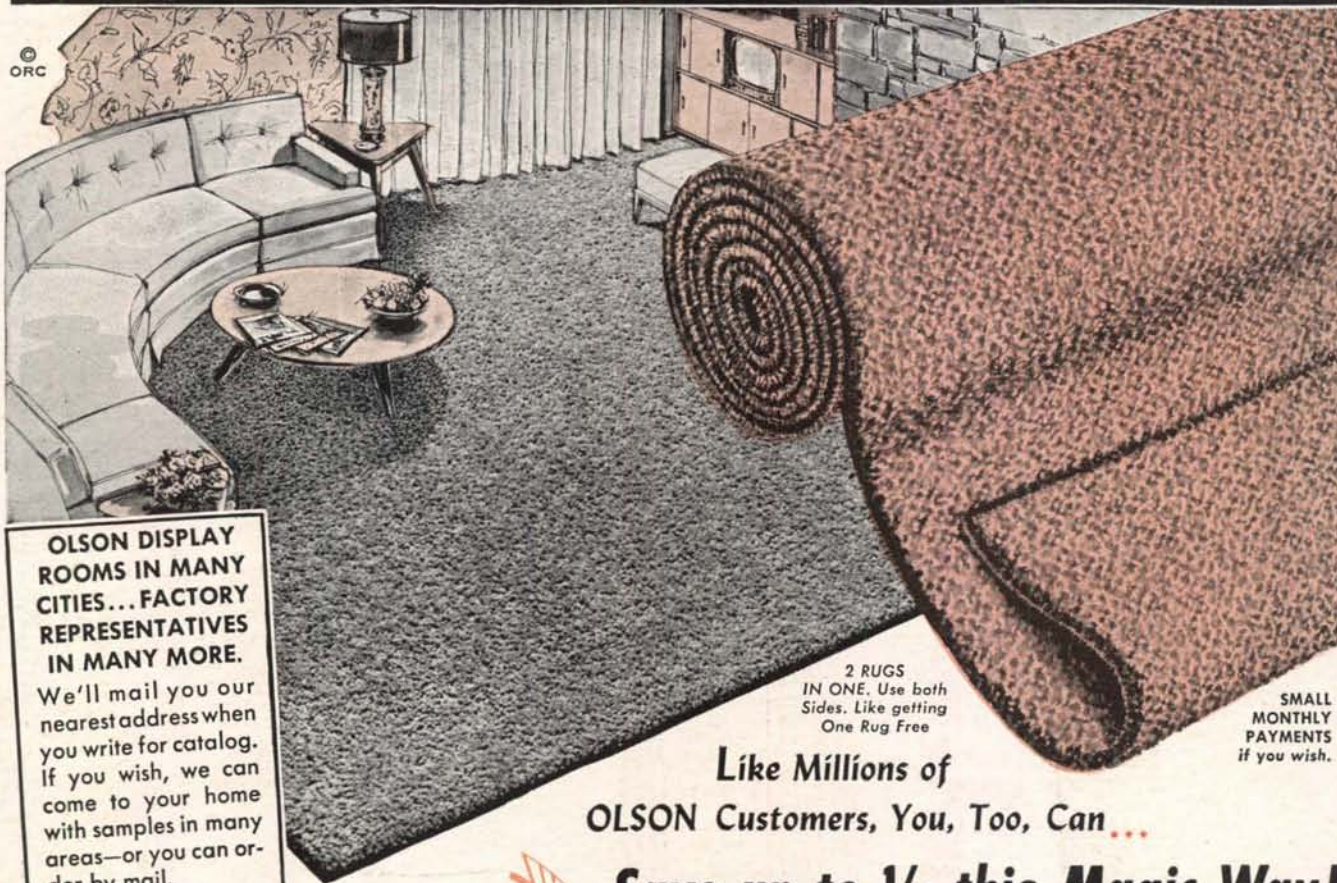
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